FORECASTING TRAFFICABILITY OF SOILS

DEVELOPMENT AND TESTING OF SOME AVERAGE RELATIONS FOR PREDICTING SOIL MOISTURE

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TECHNICAL MEMORANDUM NO. 3-331

Report 5

June 1959

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and

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PREFACE

This report presents progress on the development and testing of methods for predicting the moisture content of soils. It is a part of phase II of the Corps of Engineers Subproject 8-70-05-400, "Trafficability of Soils as Related to the Mobility of Military Vehicles," under Project 8-70-00-000, "Ground Mobility Research." The two phases of the subproject are: I, the development of instruments and techniques for determining the trafficability of fine- and coarse-grained soils and snow by ground reconnaissance parties; and II, the development of methods for estimating the trafficability of soil or snow without complete physical contact with it.

Phase I studies were begun in 1945, and work with fine-grained soils is essentially complete. Development of instruments and techniques for measuring the trafficability of coarse-grained soils is well advanced, and work with snow is in progress. Phase I soil studies are described in the series of reports, Technical Memorandum 3-240, Trafficability of Soils, listed on the inside of the back cover of this volume. Studies in snow are reported in the series, Technical Memorandum 3-414, Trafficability of Snow.

Phase II consists of two parts: one, a study of the use of aerial photographs for estimating trafficability; the other, a detailed study for predicting the effects of weather, physiography, soil properties, vegetation, and other physical phenomena on the trafficability of soils. The two parts, now being studied independently, are meant to complement each other in the application stage. The airphoto study is being conducted by Purdue University under contract to the U. S. Army Engineer Waterways Experiment Station. This work is substantially complete. Soil-weather studies have been in progress at the Waterways Experiment Station since 1948. In 1951,

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the U. S. Forest Service began working with the Corps of Engineers in developing a method for predicting soil moisture, the factor that had been found to have the greatest influence on soil strength and hence soil trafficability.

This report was prepared by the Vicksburg Research Center (formerly called the Vicksburg Infiltration Project) of the Southern Forest Experiment Station, U. S. Department of Agriculture, in cooperation with the Army Mobility Research Center, U. S. Army Engineer Waterways Experiment Station, Corps of Engineers. It is the fifth report in the series, Technical Memorandum 3-331, Forecasting Trafficability of Soils, listed on the inside of the front cover.

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A meeting of consultants and cooperators was held at the Waterways Experiment Station on 31 July and 1 August 1956 to review results of the project to date with emphasis on the material presented in this report. Acknowledgment is made to the following participants:

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SUMMARY

From detailed observations made in previous studies of sites distributed throughout the United States, a series of equations, factors, and average soil-moisture relations was derived for use in application of the previously developed soil-moisture content prediction method to sites for which specific data on the moisture regime are not available. Equations were developed to approximate field-maximum and -minimum moisture contents; factors were selected for transition dates and minimum-size storm; and moisture-accretion and -depletion relations were developed to express rates of soil wetting and drying.

The average relations were tested on 24 sites that had been used in the development of the prediction method, on 10 sites located at several universities for which soil strength and moisture data were available, and on 617 sites located throughout the United States for which detailed data were not available. Comparison of predicted with measured values was made. Accuracy of prediction of soil moisture was within reasonable limits of error for well-drained soils. However, the accuracy for wet soils, soils with a high water table, or soils with appreciable organic matter was not good. Also difficulties were found in setting transition dates for making the proper seasonal application of depletion curves.

The soil-moisture prediction method developed and a sample of its application are given in Appendix A. Appendix B describes the 617 sites with limited data used in this investigation. Appendices C, D, E, and F present results of special studies made to improve the accuracy of the prediction method.

Completion of this report marks the end of the first stage of soil-moisture prediction research with the development of a workable prediction method. Future work will be directed toward a more fundamental study of the hydrologic conditions that affect soil moisture and trafficability, and their prediction. Analysis of past and current work will be continued in an effort to reduce the number and complexity of factors required for prediction and increase the accuracy of effect of each of the applicable factors.

FORECASTING TRAFFICABILITY OF SOILS

DEVELOPMENT AND TESTING OF SOME AVERAGE RELATIONS FOR PREDICTING SOIL MOISTURE

PART I: INTRODUCTION

Objectives of the Prediction Studies

1. The trafficability of soils is affected by the relation of their moisture contents to the nature, arrangement, size, and distribution of the inorganic and organic soil particles, and by other interrelated environmental factors. Thus, the trafficability of a given soil is affected primarily by changes in its moisture content. If the characteristics of a soil are known and its water content can be predicted, it should be possible to forecast its trafficability from the known relation between soil moisture and strength. However, in the characterization of a given soil in terms of trafficability many interrelated factors must be considered, some of which are difficult to measure accurately. Consequently, in trafficability prediction, many of these factors will have to be estimated rather than measured. A primary purpose of the prediction studies is to reduce the number of factors used to describe a given condition to the minimum, and then find means of characterizing each of these essential factors with the greatest possible accuracy. Another purpose of these studies is to improve estimating methods until a reasonably accurate forecast of trafficability can be made without on-the-ground measurements.

2. Physical properties often vary considerably over a given soil area; for example, soil structure and compactness can change across fence lines as a result of differences in agricultural practices. Other differences are due to the soil's deposition, development, and erosion, and the presence of roots, root channels, stones, and foreign matter. Because surface soils possess an inherent variability in these factors, the forecast cannot be expected to define trafficability with the precision that can be obtained in ground reconnaissance with instruments and techniques developed for the purposes. However, it appears probable that

trafficability can be forecast with reasonable accuracy and within known limits of probability.

Uses for Prediction Procedures

3. Forecasts of trafficability have direct application to the vital problem of mobility of ground forces. Although now effective on only a limited range of soils, present methods if refined and extended could provide a means of forecasting mobility over broad areas within stated limits of error. For strategic purposes, estimates could be made of the average number of days in a given season that vehicles of certain types might be expected to operate over a given area; also, the chances for departures from the average to allow for abnormal variation in the weather could be estimated. For tactical purposes, forecasts could inform a commander concerning the trafficability of proposed routes, could indicate the minimum period after given amounts of rainfall that certain areas would be passable, and might point out trafficability hazards on apparently operable terrain. One of the principal uses of prediction would be to assist in locating main and alternate supply routes over which cargo vehicles could move to the support of ground troops or other installations if the enemy is in a position to deny use of improved roads.

Previous Developments

4. The early studies of soil trafficability showed that the strength of the soil layer 6 to 12 in. below the surface is of major importance to vehicle mobility. As the strength of a soil varies primarily with soil moisture, a means of predicting soil-moisture content is essential to any method of forecasting soil trafficability. The first four reports of this series, listed inside the front cover of this report, outline the development of a soil-moisture prediction method using certain known data concerning the area involved. Criteria for a satisfactory method were that it: (a) apply specifically to the 6- to 12-in. soil layer;* (b) be simple

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* The terms "depth" and "layer" are used interchangeably in this report.

enough to permit its use by nontechnical personnel; and (c) be based on data readily available or easily obtainable in the field.

5. Such a method was developed and tested. First, data were obtained and analyzed from 59 sites, and the prediction method was tested as the data were accumulated. The method and data analysis are described in Report 3 of this series. Results showed that the method was applicable in all cases tested, although the prediction relations such as the depletion (drying) curves varied among sites because of differences in physical properties of soils. The prediction method was then considered ready for testing on a wider range of climates and soils.

6. In the studies of a wider range of soils and climates, detail data were obtained for a total of 131 prediction development sites located in 17 states and Alaska and specific prediction relations were developed for each. Results of this work are summarized in Report 4 of this series. It was found that soil-moisture accretion and depletion relations derived from the detail data collected at the prediction development sites permitted accurate prediction of soil-moisture content at those sites. However, the method could be utilized only if sufficient data were available to describe the moisture regime of the site for which the prediction was made.

This Investigation

7. The next step in the soil-moisture prediction study was to develop a means for predicting soil moisture at sites for which specific accretion and depletion relations were not available. This entailed correlation of the relations developed for the prediction development sites with factors such as soil texture and seasons of the year. Earlier efforts at correlation (discussed in Report 3) were strengthened by the additional information gathered at the prediction development sites, and a set of tentative average relations (described in this report) was developed for predicting moisture content of certain soils for which specific accretion and depletion relations had not been derived.

8. The accuracy of these tentative average relations was tested by applying them to 24 of the prediction development sites used in the

derivation of the average relations, and to 10 sites that had been established in cooperation with several universities, called "trafficability-university sites," in the early years of the prediction study.

9. The accuracy and utility of the relations for predicting moisture on a diversity of soils and environmental conditions were tested by applying the relations to a number of sites for which detailed soil-moisture records had not been collected, and for which rainfall records from nearby U. S. Weather Stations had to be used. Over 600 such sites, called survey sites, were established in the summer of 1954 and their soil characteristics determined. The sites were located in four general regions designated by the U. S. Forest Service as: (1) the southern, covering portions of Arkansas, Tennessee, Louisiana, Mississippi, Alabama, Georgia, and Florida; (2) the northeastern, covering Pennsylvania, New York, Vermont, New Hampshire, Massachusetts, and Connecticut; (3) the lake states, Wisconsin, Minnesota, Iowa, and Illinois; and (4) the intermountain, covering Utah, Idaho, and Nevada. The sites were visited periodically for a year to obtain measurements of soil strength and moisture content.

Purpose and Scope of This Report

10. The purposes of this report are to:

a. Describe the development of the tentative average relations among the physical properties of soils and topographic and climatic features found to be useful in predicting soil moisture at sites for which specific soil-moisture accretion and depletion relations are not known.

b. Discuss the procedures used and the accuracy obtained when the tentative average relations were applied to prediction development sites which had been used to develop the method and for which detailed soil and climatic data were available, as well as when applied to the survey sites and trafficability-university sites for which detailed soil-moisture data were not available.

c. Present the conclusions derived from this investigation and outline future work needed to improve the accuracy of soil-moisture prediction.

11. This report also includes six appendices. Appendix A describes a sample application of the tentative average relations to a specific site. This appendix includes all information necessary for such an

application and thus constitutes the present soil-moisture prediction method. Appendix B describes the survey sites used in this investigation and lists the hydrologic condition and trafficability data obtained. Appendices C, D, E, and F present results of special studies designed to improve the accuracy of soil-moisture prediction. Appendix C gives some observations of runoff with Class I accretion. Appendix D presents results of a soil-moisture variation study on eight sites located in six states. Appendix E summarizes the study of solar radiation and other meteorological factors as related to soil-moisture depletion loss. Appendix F describes a study of cultivation and soil properties that affect trafficability on one site.

Definitions

12. The following definitions of the specialized terms used in this report include principally those that were not defined in Report 4 of this series, and those that have been revised since Report 4 was published. Standard texts and glossaries on soil physics and soil mechanics were used insofar as possible; however, modifications or new terms were sometimes necessary to describe the work accurately. Also definitions sometimes vary between authorities, in which case the definition most nearly fitting this work was selected. The list is divided into three parts: general terms used in a number of scientific fields, soil-moisture prediction terms used in the method presented in this report, and trafficability terms. Terms that are used primarily in engineering are followed by (E); those used in soil science and other biological sciences by (S).

General terms

Bulk density (S). The dry weight of soil per unit volume (g per cm^3) including voids and interstices between particles. The volume of the soil sample is measured in its field condition, whereas its weight is measured after it has been dried to a constant weight at 105 C (usually 24 hours is required for 300-g samples). Bulk density is synonymous with unit weight (dry). Multiplied by 62.4, it is equal to the dry unit weight in pounds per cubic foot.

Field capacity (S). The amount of water held in a soil with adequate opportunity for drainage after the excess gravitational water has drained away and after the rate of downward movement of water has materially decreased.

Moisture tension (S). Considered to be the force or tension by which water is held to the soil surface or within interstices; it varies inversely with the soil-moisture content. The moisture-tension relation for a particular soil is determined by means of a laboratory device at a sequence of tension or pressure settings. At a given moisture content, the tension is equal to the negative or gage pressure to which free water in the instrument has been subjected in order to be in hydraulic equilibrium, through a permeable wall or membrane, with the water in the soil.

Phenology (S). The science of the relation between climate or weather and periodic biological phenomena such as the beginning of spring growth.

Soil-moisture content per cent by weight (S). The soil-moisture content expressed as a percentage of the weight of water driven off at 105 C to the weight of the remaining dry soil.

Soil-moisture content per cent by volume (S). The soil-moisture content expressed as a percentage of the volume of water driven off at 105 C to the volume of the soil in its natural structure including voids and interstices.

Soil-moisture content in inches (S). An expression of moisture content by volume of soil in its natural structure with units of depth per unit depth (e.g., inches of water per inch of soil). The usual expression in this report is inches of water per 6-in. soil layer. These moisture contents are computed as follows:

$$\text{Moisture content, in. of water per 6-in. soil layer} = \frac{\text{moisture content, \% by wt, } \times \text{ bulk density} \times 6}{\text{unit wt of water (1)} \times 100}$$

On the basis of dry unit weight in pounds per cubic foot, the computation is as follows:

$$\text{Moisture content, in. of water per 6-in. soil layer} = \frac{\text{moisture content, \% by wt, } \times \text{ dry unit wt} \times 6}{\text{unit wt of water (62.4)} \times 100}$$

Total pore space (S). The total amount of voids (air and water) in a unit volume of soil in its natural structure. It is a measure of the volume of water at saturation. The total pore space in per cent of volume of sample can be computed from the following relation:

$$\text{Total pore space, \% of sample volume} = \left(1 - \frac{\text{bulk density}}{\text{specific gravity} \times \text{unit wt of water}}\right) \times 100$$

Soil-moisture prediction terms

Accretion (S). Moisture gain within a soil layer. The moisture gain is caused primarily by precipitation. Lateral flow and a rise in water table may directly contribute to accretion at some sites; however, these sources are usually related to precipitation.

Accretion classes (S). Accretion is divided into two classes, I and II, depending on whether rainfall is less or more, respectively, than the available storage in the surface to 12-in. layer of the soil.

Accretion regression (S). A linear regression computed for each 6-in. soil layer and accretion class, by which accretion is related either to rainfall or available storage depending on the accretion class.

Average moisture-prediction relations (S). Relations obtained by averaging the data from a large number of soil-environmental conditions and applied in the prediction method.

Available storage (S). The difference between the amount of water in a soil layer at the field-maximum moisture content and the amount of water in the layer at any given time. Available storage is expressed on a volume basis (in. per 6-in. layer in this report).

Depletion (S). Moisture loss from a given soil layer. The moisture loss is caused by evapotranspiration and drainage.

Depletion curve (S). The curve of soil-moisture content against time for a period of no accretion. Curves are determined for a given site by soil layers and seasons.

Field-maximum moisture content (S). The recurring maximum moisture content of a soil layer in its natural position. This value, the highest point on the depletion curve, represents maximum wetting during the wet season of the period of daily record, usually one year.

Field-minimum moisture content (S). The lowest value of each depletion curve, representing the lowest average moisture level that occurs

during the dry season of the period of record, usually one year.

Minimum-size storm (S). The smallest storm used in moisture prediction for a particular soil-vegetation condition. Smaller storms do not appreciably wet the soil and depletion occurs.

Prediction development sites (S). Sites on which detailed measurements were taken daily, and from which specific accretion and depletion relations were derived.

Specific moisture-prediction relations (S). Relations derived from and applied in the prediction method to a specific site. Prediction relations include accretion and depletion curves, field-maximum and -minimum moisture contents, transition dates, and minimum-size storm.

Soil-moisture prediction method (S). The method used by WES to predict soil-moisture content. Described in detail in Appendix A. Average or specific prediction relations can be employed in the method.

Survey sites (S). Sites established in four regions of the United States to broaden the knowledge of soil strength-moisture relations, and to verify the applicability of the tentative average moisture-prediction relations. Monthly measurements were made.

Tentative average moisture-prediction relations (S). Tentative sets of relations and equations averaged from specific prediction relations and used in general predictions of soil moisture.

Trafficability-university sites (E). Sites established at several universities to extend knowledge of soil strength-moisture relations. Soil measurements were made at weekly intervals.

Transition date (S). A date at which the average depletion rate exhibits a distinct change as shown in the plot of the daily soil-moisture record. Four dates were found that corresponded to but did not coincide with the calendar changes of season.

Transition periods (S). The seasonal periods of the year in which the depletion rate is intermediate between the summer and winter rates. Spring and autumn showed similar depletion rates, and were grouped together to determine the transition depletion curve.

Wetness index (S). A numerical index expressing the effect of environmental conditions upon the maximum moisture content in the surface to 12-in. layer of soil. The degree of wetting is determined by the depth to

a perched or permanent water table, and the depth of penetration of water from precipitation. (See paragraph 21 for details.)

Trafficability terms

Soil strength (E). The resistance of a soil to an applied stress. The strength varies with moisture content and the nature, arrangement, and size distribution of the soil particles, and the test itself. The principal unit of strength used in trafficability studies is cone index.

Cone index (E). An index of the shearing resistance of soil obtained with the cone penetrometer. The value is a dimensionless number representing the resistance to penetration into the soil of a 30-deg cone of 0.5-sq-in. base or projected area. The number, although considered dimensionless, is actually pounds of force on the handle divided by area of the cone base in square inches.

Remolding index (E). A ratio expressing the proportion of original strength that will be retained by a soil after being subjected to a remolding test. A remolding index less than 1.00 indicates strength loss; a remolding index greater than 1.00 indicates a strength gain.

Rating cone index (E). The product of the measured cone index and the remolding index for the same layer of soil. Rating cone index represents the strength of the remolded soil.

Cone penetrometer (E). A field instrument consisting of a shaft with a 30-deg, right circular cone of 1/2-sq-in. base area mounted on one end, and a proving ring with dial gage and handle mounted on the other.

Trafficability sampler (E). A piston-type sampler for securing soft soil samples. Spacer bars permit cutting of the sample to such a length that the density of the soil in pounds per cubic foot may be obtained by multiplying the weight of the sample in grams by 0.4.

Remolding equipment (E). A cylinder of the same diameter as the trafficability sampler cylinder mounted vertically on a base, and a 2-1/2-lb drop hammer which travels 12 in. on an 18-in. section of a cone penetrometer staff fitted with a circular foot. A cone penetrometer, equipped with a 1/2-sq-in. base area cone, and a trafficability sampler are needed to conduct tests.

100-blow remolding test (E). The remolding test is conducted in the following manner: A sample is taken with the trafficability sampler,

loaded into the remolding cylinder, and pushed to the bottom with the drop-hammer foot. Cone indexes are measured at the surface and at 1-in. intervals to a depth of 4 in. Next, 100 blows of the hammer are applied and cone indexes are remeasured in the remolded soil. The quotient obtained by dividing the sum of the five cone index readings made after remolding by the sum of five readings made before remolding is termed the remolding index.

Vibrated remolding test (E). This remolding test is conducted in the same manner as the 100-blow test, with two exceptions. The cone index measurements are made with the 0.2-sq-in. cone instead of the 0.5-sq-in. cone, and the sample is remolded by dropping the remolding cylinder and base with the sample inside 25 times from a height of 6 in.

PART II: DEVELOPMENT OF TENTATIVE AVERAGE MOISTURE-PREDICTION RELATIONS

13. As stated earlier, prediction relations discussed in previous reports applied only to the sites from which the relations were derived, and in order to make predictions for areas without detailed moisture records, suitable average wetting-and-drying relations were necessary for various kinds of soil, climate, vegetation, and topographic and geographic positions. With soil and site characteristics known, soil moisture can be predicted by means of these average wetting-and-drying relations. The ultimate goal is dependable prediction of soil-moisture content, within known limits of error, without immediate physical contact with the soil, and correlation of these predictions with soil strength.

14. Studies were started in 1953 at 30 sites to determine the soil and site factors that correlate with the moisture-prediction relations. Results of these studies were given in Report 3 of this series. These studies were continued as data from more sites were obtained. The studies were not made concurrently for all prediction relations; hence, the studies in which equations were derived for estimating field-maximum and -minimum moisture contents did not involve as many sites as later studies of depletion and accretion relations.

15. At the end of 1954 it was decided to gather the various average relations and equations together as a unit for testing the utility of the moisture-prediction method on sites with limited data. The development and testing of this set of average relations is the subject of this report. The averages were considered tentative because data were still being obtained from various prediction development sites--hence, specific relations for these sites were yet to be derived--and because more rigorous correlation studies were planned following completion of these site studies.

16. All relations needed for an average set were not necessarily derived for each site, because conditions during the period of measurement did not always encompass the range of possibilities required. For example, the dry western sites had few or no large storms needed to produce Class II accretions, hence no Class II accretion relations could be derived for these sites. With some northern and high altitude sites, frost and snow

prohibited data collection during winter, and no winter depletion curves could be derived. Some of the eastern sites that suffered prolonged drought, and dry western sites did not have data for wet conditions during summer. Fragmentary depletion curves were derived and successfully used for testing during the period of record at the site. These curves, however, could not be reliably extrapolated to the field-maximum moisture content for use in correlation studies. Some maximum moisture contents were measured from artificially wetted plots; others were established from a single peak of the soil-moisture record. Such data were not considered reliable for the field-maximum moisture content correlations. Because of these unavoidable skips in the data, and because for later correlation studies data were available from more sites, the number of sites used to derive an average varies considerably among the prediction relations.

17. It was also recognized that the soil and environmental conditions covered by the usable data of the prediction development sites included only a small portion of the possible combination of conditions existing throughout the United States. Any broad application of the tentative average relations would entail considerable extrapolation. Two instances will emphasize this; application was made to 160 sites in the lake states region covering portions of four states, but only nine prediction development sites were situated in this region and these were within a radius of three miles at one location in northern Wisconsin; application was also made to 135 sites in the northeastern region and no prediction development sites were located there. In spite of the sparsity of the data, the derivation and application of an interim set of average relations were considered worthwhile because such a set would serve three purposes:

a. It would show the possibilities of a general moisture-prediction system, and if found sufficiently accurate, the system could be used immediately, if needed, pending a subsequent improved set of average relations.

b. It would point out conditions not covered by the prediction development sites needing further measurement and study to improve accuracy of the prediction system.

c. It might show that the average prediction relations could be adjusted and modified to fit requirements of specific regions or conditions to improve prediction accuracy without further measurement.

18. In order to make a moisture prediction,* the following factors are needed: (1) field-maximum moisture content, (2) field-minimum moisture content, (3) smallest size storm that appreciably wets the soil, (4) soil-moisture accretion relations, (5) seasonal soil-moisture depletion curves, and (6) transition dates separating the seasons. A description of the development of averages for these prediction relations follows.

Approximation of the Field-maximum Moisture Content

19. The field-maximum moisture content** indicates the maximum in the range of naturally occurring soil-moisture contents. It establishes the wet end of moisture-depletion curves, and is used in the determination of amount of storage space available for absorbing water. The field-maximum values for a given soil layer can be obtained by selecting the recurring peak values from daily soil-moisture records. Usually a period of one year is needed to obtain sound values of recurrent maximum wetting of the profile. In arid regions or in drought cycles, longer periods may be necessary. If detailed records are not available, an approximation of the field maximum must be made to accomplish soil-moisture prediction. Development of this approximation is described in the following paragraphs.

Factors considered for use in determining field-maximum moisture

20. As the field maximum is the maximum moisture content of the soil in its natural position, the value depends not only on soil properties such as texture but also upon topographic and profile characteristics that influence the wetting or draining of the soil. For instance, the small amount of water held in a well-drained sand would be greatly increased in a low-lying site if the sand was wet by a water table. The six factors thought to have the greatest influence on the field-maximum moisture content of a soil were evaluated to select those that would give the best

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* C. A. Carlson, K. G. Reinhart, and J. S. Horton, "Predicting moisture in the surface foot of soil," Proceedings, Soil Science Society of America, vol 20, No. 3 (July 1956), pp 412-415.

** C. A. Carlson and R. S. Pierce, "The field maximum moisture content," Proceedings, Soil Science Society of America, vol 19, No. 1 (January 1955), pp 81-83.

estimate of the field maximum. These were: (1) wetness index, (2) sand content, (3) clay content, (4) percentage of organic matter, (5) bulk density, and (6) 0.06-atm tension value. These factors are discussed in the following paragraphs.

21. The wetness index was devised to evaluate the influence of site characteristics on the potential maximum moisture content of the soil and is described in table 1. The wetness index indicates the distance between

Table 1

Classification of Sites by Wetness Index

Wetness Index	Potential Wetness	Depth to Water Table	Depth of Wetting	General Characteristics of Sites*
0	Arid	Indeterminable	Less than 1 ft	Located in desert regions
1	Dry	Indeterminable	1-4 ft	Steeply sloping, denuded, or severely eroded and gullied. Mostly semiarid to arid regions
2	Average	More than 4 ft	More than 4 ft	Well-drained soil with no restricted layers or pans; fair to good internal and external drainage. Slope may be flat to steep
3	Wet	1-4 ft	To water table	Soil not well drained. Restricted layers or deep pans may be present. May occur at base of slopes, on terraces, upland flats, or bottomlands
4	Saturated	Less than 1 ft	To water table	Sites waterlogged or flooded at least part of year. Bottomlands subject to frequent overflow. Upland flats with poor internal drainage or shallow pans. Slopes with very poor internal drainage

* For use in classification when water table and wetting depths are not measured.

the surface of the soil and the maximum height of the water table as measured in a well or auger hole at the site. To be significant, this

water-table height had to be maintained for at least one day during the year or period of record used in the soil-moisture prediction studies. On dry sites, where moisture does not usually penetrate the entire profile, the depth of wetting was also considered.

22. Sand and clay content were selected as factors best characterizing the soil texture as related to water retention. Percentage of organic matter was used because it influences the retention of water in several ways: through its effect upon distribution of large pores, its direct absorption and retention of water, and its influence on aggregation and soil structure. Bulk density and the 0.06-atm tension values are an index of soil structure; however, these last factors are also influenced by texture and organic matter.

Evaluation of the factors

23. Data from 39 prediction development sites were used in the evaluation of the six factors. The mean field maxima of the 39 sites were 2.46 in. and 2.28 in. for the surface to 6-in. and 6- to 12-in. layers, respectively. The values ranged from 1.50 in. to 3.28 in. for the surface to 6-in. layer, and from 1.21 in. to 3.38 in. for the 6- to 12-in. layer.

24. The six factors were plotted individually against the field-maximum moisture contents of each of the two soil layers. No significant relations were shown except for the 0.06-atm tension values. When expressed as linear regressions these relations were good, with 73% and 63% of the variation in the field-maximum values associated with the 0.06-atm tension values in the surface to 6-in. and 6- to 12-in. layers, respectively. Thus, the 0.06-atm tension value, determined from cores, is a good first approximation of the field-maximum moisture content of a soil layer. Though this tension value appears to integrate the combined influences of the properties of soil materials on the retention of water in a soil layer, it does not include the effects of topography and the soil profile.

25. Even though the five other factors did not individually show good relations to the field maximum, they do affect pore-size distribution and water retention, so a multiple regression analysis was made to determine their effects simultaneously, following the methods of Ezekiel.* Of

* M. Ezekiel, Methods of Correlation Analysis, 2d ed (New York, John Wiley and Sons, Inc., 1941).

the six variables, bulk density was found to have the least relation to the field-maximum values, and it was dropped as a factor after the first multiple analysis. The other factors influenced the estimation of the maximum in varying degrees. The 0.06-atm tension value had the greatest influence, with sand content next, followed by the wetness index. Organic matter and clay content had lesser effects; the organic matter content was important for the surface to 6-in. layer only, whereas the clay content was important in the 6- to 12-in. layer. As would be expected, the layers in which these two factors are more important are also the layers containing the higher amounts of these constituents.

26. Equations that included the 0.06-atm tension values gave the best estimates of the field maximum. However, tension values must be determined on soil cores in the laboratory* and, unfortunately, few laboratories do this analysis and published data are limited. Hence, equations were also derived without the tension values. Texture and organic matter are more widely determined and more published results are available. These latter can also be estimated in the field by the appearance and "feel" of the soil. Equations without the tension values, therefore, may be more widely used, even though they are less accurate. The equations developed for use in soil-moisture prediction are as follows:

Without 0.06-atm tension values:

Field-maximum moisture content, in.
Surface to 6-in. layer = +2.06 - 0.011 S + 0.116 OM + 0.151 WI (1)

Field-maximum moisture content, in.
6- to 12-in. layer = +2.06 - 0.012 S + 0.008 C + 0.155 WI (2)

With 0.06-atm tension values:

Field-maximum moisture content, in.
Surface to 6-in. layer = -0.31 + 1.042 T (3)

Field-maximum moisture content, in.
Surface to 6-in. layer = +0.68 - 0.006 S + 0.077 WI + 0.737 T (4)

Field-maximum moisture content, in.
6- to 12-in. layer = +0.20 + 0.897 T (5)

Field-maximum moisture content, in.
6- to 12-in. layer = +0.83 - 0.006 S + 0.007 C + 0.134 WI + 0.492 T (6)

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* R. W. Leamer and B. Shaw, "A simple apparatus for measuring noncapillary porosity on an extensive scale," Journal, American Society of Agronomy, vol 33 (1941), p 1003.

where:

S = sand, %

C = clay, %

OM = organic matter, %

WI = wetness index

T = moisture content, in. per 6 in. of soil, at 0.06-atm tension.

27. Equation 1, for the surface to 6-in. layer, derived without including 0.06-atm tension values, accounted for 69% of the variation in the field-maximum values; equation 4, with tension values, accounted for 81%. For the 6- to 12-in. layer, 63% of the variation is explained by equation 2, without tension values, whereas 79% is explained by equation 6 when tension is included. The maximum values vary inversely with sand content, and directly with the other factors.

28. The equations express a linear relation between the field maximum and the factors. Using a method of successive approximations by Ezekiel,* tests were made for nonlinear trends among the factors, but none were found.

Approximation of the Field-minimum Moisture Content

29. The field-minimum moisture content usually corresponds to the wilting point of the soil and is approximated by the 15-atm moisture tension value. In some cases, particularly in the surface layer of clay soils, evaporation may reduce the field-minimum moisture content below the wilting point. If detailed records are not available, the field minimum must be estimated because it is necessary for the establishment of the dry end of the depletion curve.

30. The minimum moisture content is governed by the soil properties that determine water retention under the high stress or tension associated with wilting. Equations were derived from data of 59 prediction development sites relating likely factors to the field-minimum values. These factors include texture, organic matter, and wetness index. Inclusion of the 15-atm soil-moisture tension values, which are generally accepted as an

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* Op. cit.

index of wilting point, would probably have been desirable, but these values were not obtained for the survey sites and are rarely available from other studies. Initial analyses showed that the sand content was not appreciably related to the minimum values, and it was not considered further. The equations finally selected for use in prediction are as follows:

Field-minimum moisture content, in.
Surface to 6-in. layer = -0.013 + 0.007 C + 0.074 OM + 0.149 WI

Field-minimum moisture content, in.
6- to 12-in. layer = +0.131 + 0.017 C + 0.044 OM + 0.119 WI

where

C = clay, %

OM = organic matter, %

WI = wetness index

31. The factor for organic matter is larger in the surface to 6-in. layer, whereas the clay content factor is larger in the 6- to 12-in. layer. This is the same relation as for the field maximum.

Minimum-size Storm

32. The minimum-size storm was determined for 106 of the prediction development sites. At five of these the minimum storm consisted of 0.05 in. of rainfall; at 89 it was 0.10 in.; at 2, 0.15 in.; and at 10 it consisted of 0.20 in. or more. The sites with the 0.05-in. minimum storm were mostly bare, whereas those with a minimum greater than 0.15 in. were mostly forested. This increase in the minimum effective storm size is to be expected with the increase in density of vegetation. However, 84% of the sites, including 16 bare and 31 forested, had minimum-size storms of 0.10 in. Consequently, 0.10 in. was selected as the minimum-size storm for the tentative average relations regardless of vegetative cover, though a smaller or larger minimum storm can be used if conditions of cover warrant. Storms smaller than the minimum were not used in the derivation of accretion regressions nor in making predictions.

Accretion Relations

33. In the early development of the prediction method, wetting of

the soil was found to depend primarily upon the amount of rainfall and amount of storage space available in the soil for absorbing water. Rainfall was determined to be the critical variable when total rain for the storm was less than the available storage space for moisture in the surface to 12-in. layer. Moisture gains (accretion) under such conditions were called Class I accretions. The condition of total rainfall exceeding storage space was termed Class II accretion, and in this class, the amount of water falling on the soil was not nearly so important to accretion as the amount of available pore space.

34. Accretion relations were derived for the surface to 6-in. and 6- to 12-in. layers on every prediction development site by computing regressions of rainfall against accretion (Class I) and available storage against accretion (Class II). Soil-moisture gain was determined for each storm during the period of record by subtracting the moisture content before the storm from that after the storm. Available storage was determined by subtracting the moisture content before the storm from the field maximum.

35. In order to check the early findings concerning the relative importance of rainfall and storage, a multiple regression analysis was made in 1955 for Class I accretions in the surface to 6-in. layer, using an aggregation of 591 individual storms exceeding 0.25 in. in size that occurred on 30 sites. Seven independent variables were used: precipitation and available storage varied with storms, and percentage of sand, percentage of clay, storage capacity, amount of vegetation, and wetness index varied with sites.

36. Sixty per cent of the variation in accretion was accounted for by these variables. Rainfall alone explained 55% of the variation. Hence, rainfall is the dominant factor influencing Class I accretion regardless of site differences when analyzed with many factors simultaneously. For specifically derived regressions of the prediction development sites, rainfall as a single independent factor, on the average, accounts for 86% of variation in Class I accretion amounts in the surface to 6-in. layer, ranging from 55% to 95% for individual sites.

37. Another multiple regression was computed using Class I accretions from storms of only one size, 0.50 to 0.60 in., thus omitting amount of rainfall as a factor but retaining the other six factors. Available

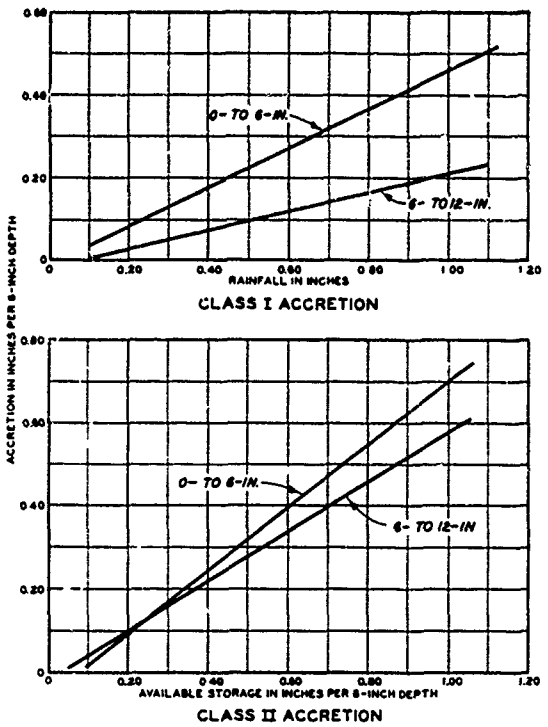


Fig. 1. Class I and Class II tentative average accretion relations, surface to 6-in. and 6- to 12-in. layers

storage accounted for 23% of the variation in accretion; the other factors contributed very little. Thus, variation in available storage is a secondary factor influencing Class I accretion, but not nearly so important as rainfall.

38. In view of these studies it was concluded that use of only the rainfall and available storage factors would suffice for the development of the accretion relations. It also appeared that a single set of four accretion regressions (Class I and II accretions for each layer) could be used for all sites. Average regressions were, therefore, computed using 1700 Class I accretions from 75 sites and 380 Class II accretions from 54 sites shown in fig. 1.

	Surface to 6-in. Layer	6- to 12-in. Layer
Class I	$\hat{Y} = 0.47X - 0.01$	$\hat{Y} = 0.22X - 0.01$
Class II	$\hat{Y} = 0.75Z - 0.05$	$\hat{Y} = 0.60Z - 0.02$

where

$\hat{Y}$ = predicted accretion, in. per 6-in. layer

X = rainfall, in.

Z = available storage at the start of the storm, in. per 6-in. layer.

Depletion Relations

39. In early studies of soil-moisture losses discussed in Report 3, comparisons among sites were made by observing general shapes of the drying curves, by determining losses for different segments, and from daily rates of loss. Three distinctive segments of the soil-moisture depletion curve

could be noted for some sites: first, where depletion rates included water lost by gravity flow; second, where rates from evapotranspiration losses alone were uniform under conditions of plentiful available water; and third, where rates from evapotranspiration losses were reduced at low soil-moisture contents. Differences in rate of water loss were noted between sites but, because of limited data, site characteristics could not be related statistically to these differences. Differences between seasons were quite distinctive, though early studies indicated that spring and autumn losses were too similar to justify separation. This spring-autumn period was called the transition period.

40. Later another study was made using more data to derive average depletion curves for use in predictions at sites with no detailed data. Because texture was found to be a major factor in the maximum and minimum estimations, and because texture influences drainage and availability of water, the curves of 48 of the prediction development sites were grouped at the start into three textural groups: sand, silt, and clay.

41. Using the U. S. Department of Agriculture soil classes, sand soils include the sands, sandy loams, and loams; silt soils include the silt loams and silts; and clay soils include all those with clay in their USDA textural class name, such as sandy clay loam or silty clay. Under the Unified Soil Classification System, sand soils include SM soils primarily and some SC, ML, and MH soils; silt soils are chiefly ML and MH soils but some CL soils are included; and the clay group includes the CH, CL, and SC classes mostly.

42. Amounts of water loss at the prediction development sites were tabulated by 5-day intervals for the first 20 days and by 10-day intervals thereafter. The average moisture loss by each textural group for each time interval was determined for each depletion season (summer, transition, and winter) for the two 6-in. layers, and 18 moisture loss curves were constructed as shown in figs. 2 and 3. These curves were derived from relatively few sites. Only three clays were in the surface to 6-in. layer and eight clays in the 6- to 12-in. layer. Most of these clays were found in the south in pine-covered areas, which may explain their high rates of loss in the transition and winter seasons as compared to the other soils. The accumulative daily moisture loss for the three textural groups and

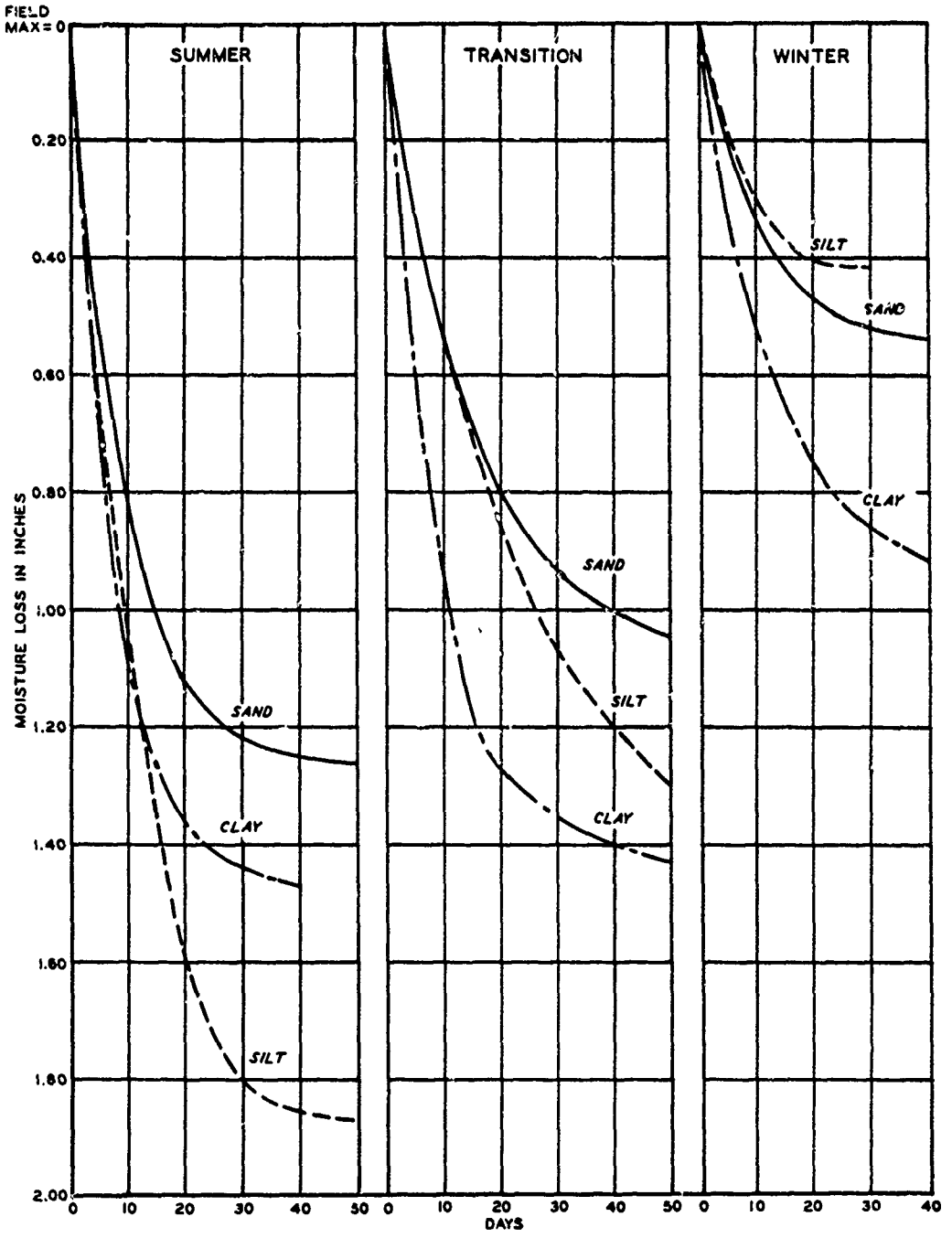


Fig. 2. Curves showing average moisture loss from field maximum, by seasons and textural groups, in surface to 6-in. layer

depletion seasons is given in tables 2 and 3 for the two 6-in. layers.

43. Subaveraging of the textural depletion curves was tried with the site wetness index considered. Wetness index is important in relation to depletion because it differentiates high water table sites from others, and

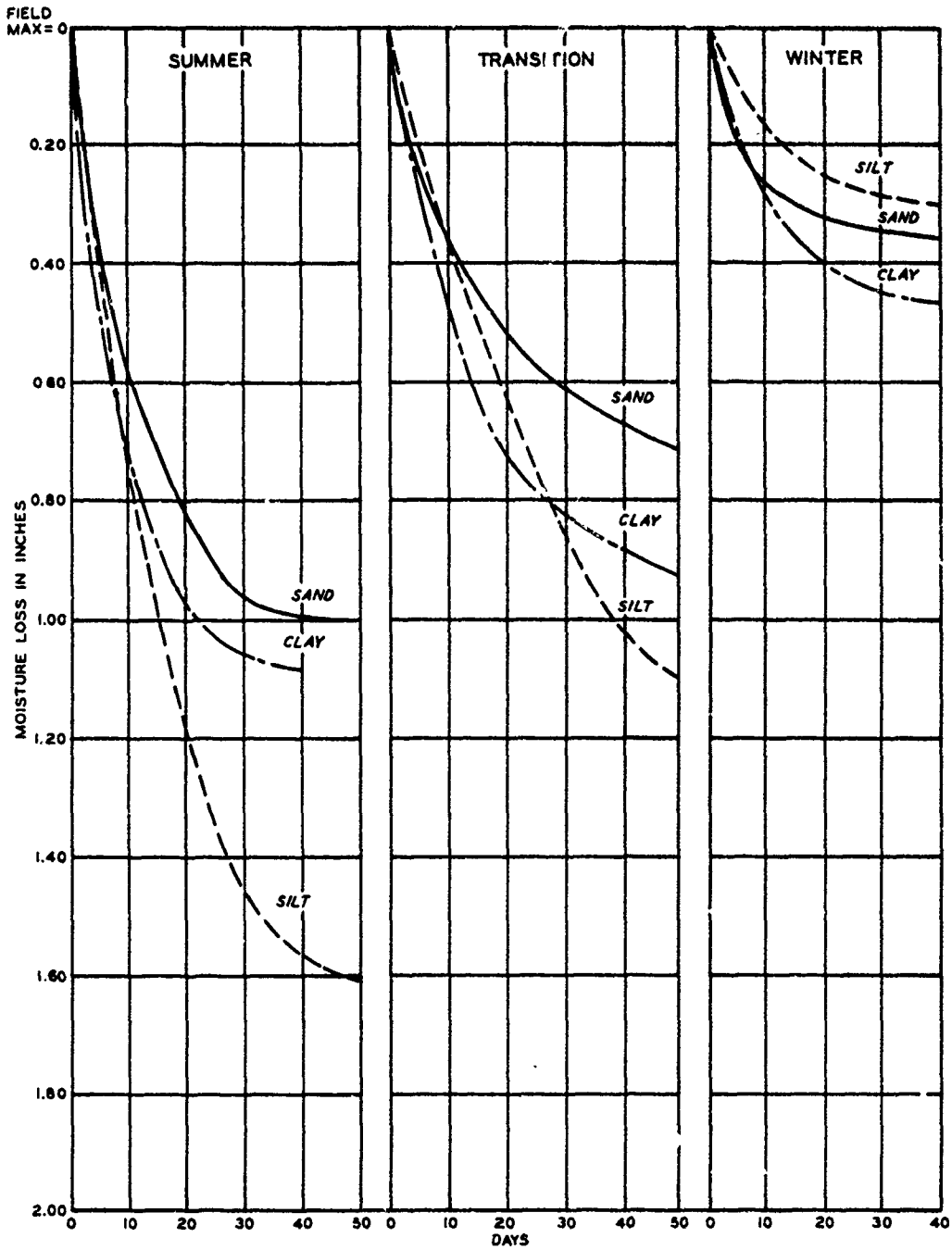


Fig. 3. Curves showing average moisture loss from field maximum, by seasons and textural groups, in 6- to 12-in. layer

thereby separates those with poor drainage and reduced depletion rates. However, the use of textural-wetness categories was abandoned when it was found that no sites were represented in several of the categories. Sparsity of data also precluded averaging by climate or locality. Although

depletion is presently broken down only by soil layer, season, and texture, the importance of drainage, climate, and other factors is recognized and

Table 2

Accumulative Daily Moisture Loss from Field Maximum Surface to 6-in. Layer

	Moisture Loss, in.								
	Sand			Silt			Clay		
Days	Summer	Trans	Winter	Summer	Trans	Winter	Summer	Trans	Winter
1	0.15	0.09	0.05	0.15	0.09	0.05	0.17	0.13	0.08
2	0.30	0.17	0.10	0.29	0.17	0.09	0.33	0.26	0.16
3	0.39	0.23	0.14	0.40	0.22	0.12	0.46	0.37	0.22
4	0.48	0.28	0.18	0.51	0.27	0.15	0.59	0.48	0.28
5	0.56	0.33	0.22	0.61	0.32	0.18	0.71	0.59	0.33
6	0.62	0.37	0.25	0.69	0.37	0.21	0.79	0.67	0.37
7	0.68	0.41	0.28	0.77	0.41	0.24	0.87	0.74	0.41
8	0.73	0.45	0.30	0.85	0.45	0.27	0.95	0.81	0.45
9	0.78	0.49	0.32	0.92	0.48	0.29	1.03	0.88	0.49
10	0.83	0.52	0.34	1.00	0.52	0.31	1.10	0.95	0.52
11	0.87	0.56	0.36	1.08	0.55	0.33	1.14	1.00	0.55
12	0.91	0.59	0.38	1.16	0.59	0.34	1.18	1.04	0.58
13	0.95	0.62	0.40	1.23	0.62	0.35	1.22	1.10	0.61
14	0.98	0.65	0.41	1.30	0.66	0.36	1.26	1.15	0.64
15	1.01	0.68	0.43	1.37	0.69	0.37	1.29	1.19	0.66
16	1.04	0.71	0.44	1.43	0.73	0.38	1.31	1.22	0.68
17	1.07	0.73	0.45	1.48	0.76	0.39	1.33	1.24	0.70
18	1.09	0.75	0.46	1.53	0.80	0.40	1.34	1.25	0.72
19	1.11	0.77	0.47	1.57	0.83	0.41	1.35	1.26	0.74
20	1.13	0.79	0.48	1.61	0.85	0.41	1.36	1.27	0.75
21	1.14	0.81	0.48	1.64	0.88	0.41	1.37	1.28	0.77
22	1.15	0.83	0.49	1.66	0.90	0.41	1.38	1.29	0.78
23	1.16	0.85	0.49	1.68	0.93	0.41	1.39	1.30	0.80
24	1.17	0.87	0.50	1.70	0.95	0.41	1.40	1.31	0.81
25	1.18	0.88	0.50	1.72	0.97	0.42	1.41	1.32	0.82
26	1.19	0.89	0.50	1.74	1.00	0.42	1.42	1.33	0.83
27	1.20	0.90	0.51	1.76	1.02	0.42	1.43	1.34	0.84
28	1.21	0.91	0.51	1.78	1.04	0.42	1.43	1.35	0.85
29	1.22	0.92	0.51	1.80	1.06	0.42	1.44	1.36	0.86
30	1.23	0.93	0.52	1.82	1.08	0.42	1.44	1.36	0.87
35	1.24	0.97	0.53	1.84	1.14		1.46	1.38	0.90
40	1.25	1.01	0.54	1.86	1.20		1.47	1.40	0.92
45	1.25	1.03		1.86	1.25			1.42	
50	1.26	1.05		1.87	1.30			1.43	

Note: End values represent maximum moisture loss.

Table 3

Accumulative Daily Moisture Loss from Field Maximum

6- to 12-in. Layer

	Moisture Loss, in.								
	Sand			Silt			Clay		
Days	Summer	Trans	Winter	Summer	Trans	Winter	Summer	Trans	Winter
1	0.12	0.07	0.06	0.11	0.05	0.03	0.14	0.08	0.05
2	0.24	0.14	0.11	0.21	0.09	0.05	0.27	0.15	0.10
3	0.29	0.18	0.14	0.28	0.13	0.07	0.34	0.19	0.13
4	0.34	0.22	0.17	0.35	0.16	0.09	0.40	0.23	0.16
5	0.38	0.25	0.20	0.41	0.19	0.11	0.46	0.27	0.19
6	0.42	0.28	0.22	0.47	0.22	0.13	0.52	0.31	0.21
7	0.46	0.30	0.24	0.53	0.25	0.14	0.58	0.35	0.23
8	0.50	0.32	0.25	0.59	0.28	0.15	0.63	0.38	0.25
9	0.54	0.34	0.26	0.65	0.31	0.16	0.69	0.43	0.27
10	0.57	0.36	0.27	0.71	0.34	0.17	0.74	0.47	0.29
11	0.60	0.38	0.28	0.76	0.37	0.18	0.77	0.50	0.31
12	0.63	0.40	0.29	0.81	0.40	0.19	0.80	0.53	0.33
13	0.66	0.42	0.29	0.86	0.43	0.20	0.83	0.56	0.34
14	0.69	0.44	0.30	0.91	0.46	0.21	0.86	0.59	0.35
15	0.72	0.45	0.30	0.96	0.48	0.22	0.89	0.62	0.36
16	0.74	0.47	0.31	1.01	0.51	0.23	0.91	0.64	0.37
17	0.76	0.49	0.31	1.06	0.54	0.24	0.93	0.66	0.38
18	0.78	0.50	0.32	1.11	0.56	0.24	0.95	0.68	0.39
19	0.80	0.51	0.32	1.15	0.59	0.25	0.97	0.70	0.40
20	0.82	0.52	0.33	1.19	0.61	0.25	0.98	0.72	0.40
21	0.84	0.53	0.33	1.22	0.64	0.26	0.99	0.74	0.41
22	0.86	0.54	0.33	1.25	0.66	0.26	1.00	0.75	0.41
23	0.88	0.55	0.33	1.28	0.69	0.27	1.01	0.76	0.42
24	0.90	0.56	0.33	1.31	0.71	0.27	1.02	0.77	0.42
25	0.92	0.57	0.34	1.34	0.74	0.28	1.03	0.78	0.43
26	0.93	0.58	0.34	1.37	0.76	0.28	1.04	0.79	0.43
27	0.94	0.59	0.34	1.40	0.79	0.28	1.04	0.80	0.44
28	0.95	0.60	0.34	1.42	0.81	0.29	1.05	0.81	0.44
29	0.96	0.61	0.34	1.44	0.83	0.29	1.05	0.82	0.45
30	0.97	0.62	0.34	1.46	0.85	0.29	1.06	0.83	0.45
35	0.98	0.65	0.35	1.52	0.95	0.30	1.07	0.86	0.46
40	0.99	0.68	0.35	1.57	1.03	0.30	1.08	0.89	0.46
45	0.99	0.70		1.59	1.07			0.91	
50	1.00	0.72		1.61	1.10			0.93	
55				1.62					
60				1.63					

Note: End values represent maximum moisture loss.

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these will be studied further as additional data become available.

44. The values of moisture loss given in tables 2 and 3 apply to the average of each soil textural group. The values for the summer season had to be adjusted because the difference between field maximum and minimum was not the same in the site being predicted as in the average shown in the tables. Adjustments were made using the ratio of the estimated range between field maximum and minimum divided by the average range of a given textural group. The ratio was multiplied by each value in the summer column of the desired texture and layer shown in table 2 or 3 to give adjusted values of moisture loss from field maximum for summer depletion. For convenience in use, the moisture loss values were converted to soil-moisture contents by subtracting each of the loss values from the field maximum, giving the usual depletion table. The adjustment of summer loss values and conversion to a depletion tabulation are demonstrated in Appendix A.

45. The moisture loss values for the winter and the transition periods given in tables 2 and 3 were used as shown in the computation of depletion. No adjustments were made in them because soil-moisture content during autumn, winter, and spring rarely reaches field minimum. If transition depletion exceeded the adjusted summer values after some days of depletion, summer values were used starting on the day the two moisture contents converged. To facilitate prediction for a particular site, depletion tables for the winter and transition periods were constructed. The field maximum was estimated from the suitable equation in paragraph 26. The moisture loss for each subsequent day for that particular season, soil depth, and soil material shown in tables 2 and 3 was then subtracted from this maximum. It was convenient to build up a set of tables by this process showing moisture depletion for a range of field maxima. A separate tabulation was needed for each of the two depths for the three soil classes, and for the two seasons (winter and transition); consequently, 12 subdivisions of a comprehensive table of average depletion rates were constructed, as shown in Appendix A, table A7.

46. Two assumptions are made in the calculations for the depletion tabulations: first, that the adjustment in rate of summer loss occurs proportionately throughout the curve and, second, that the curves of all

seasons can be shifted up or down to start depletion at the value of the estimated field maximum, without affecting the shape or slope of the curve. In the latter, water loss characteristics are assumed to be constant, although a high maximum may indicate a soil with a larger proportion of big pores which could drain more rapidly than one with an average pore-size distribution.

Transition Dates

47. Summer, winter, and transition (spring-autumn) drying curves are generally used in predictions, and transition dates are needed to determine when to shift from one set of depletion curves to another. Since the changes in soil-moisture depletion rates are caused by seasonal variations in weather and vegetation, the dates vary with both latitude and elevation, and may change at the same location from year to year.

48. It was hoped that sufficient data would be obtained from the prediction development sites to derive a system for estimating transition dates. However, records were obtained for a period of but one year at only 22 localities. These localities ranged from the Gulf of Mexico to Alaska, and from sea level to an elevation of 10,000 ft. A satisfactory method for selecting dates applicable to so wide a range of sites and for an average year could not be determined from these data. However, tentative transition dates for the 22 localities were determined from the data collected and are shown in table 4. It will be seen that the start of spring varied from March to early May, of summer from May to July, of autumn from September to the middle of November, and of winter from the end of October to the middle of December. The dates varied with latitude rather as was expected. The effects of elevation changes were not very consistent. The autumn and winter dates were not determined conclusively because soils are generally dry at this time of the year, making changes in rates of depletion difficult to discern.

49. The climates of the Florida gulf coast and California are such that it is impossible to determine spring or autumn transition periods for these areas. In Florida, the changes between winter and summer depletion rates were too small to show distinctive transition periods. In California,

Table 4

Approximate Seasonal Transition Dates Determined from Prediction Development Sites

Area	Latitude deg	Elevation ft	Transition Date (First Day of Season) Spring	Summer	Autumn	Winter
Alexandria, Louisiana	31.0	100	3/17	5/24	--	--
East Texas	31.6	225	3/15	6/1	11/18	12/1
Vicksburg, Mississippi	32.3	100-300	3/10	5/10	9/22	10/24
Crossett, Arkansas	33.0	175	3/9	5/26	10/26	12/1
State College, Mississippi	33.5	424	3/15	6/1	11/18	12/1
Union, South Carolina	34.7	500	3/10	4/28	9/23	11/23
Sandia Mountains, New Mexico	35.1	7,000	4/5	7/1	9/18	--
East Mesa, New Mexico	35.2	5,200	--	7/1	9/27	--
Flood Plain, New Mexico	35.2	5,000	4/5	5/12	9/20	--
Jemez Dam, New Mexico	35.5	5,400	3/23	7/19	9/21	--
Poplar Bluff, Missouri	36.9	520	4/16	6/11	10/1	12/10
Desert, Colorado	38.8	5,200	3/22	--	9/25	12/5
Pinon-Juniper, Colorado	39.0	7,000	3/27	--	9/16	11/26
Oakbrush, Colorado	39.0	8,500	--	--	9/10	--
Aspen, Colorado	39.0	9,200	--	--	9/8	--
Mesa, Colorado	39.0	10,200	--	--	9/3	--
Dilldown, Pennsylvania	40.0	1,900	5/7	6/12	9/15	11/10
Rhinelander, Wisconsin	44.5	1,500	5/10	6/3	9/11	--
Fairbanks, Alaska	64.9	500	--	6/4	9/15	--
Glendora, California	34.2	2,800	--	5/1	--	12/1
North Fork, California	37.2	2,800	--	4/10	--	11/11
Bass Lake, California	37.3	3,400	--	5/15	--	12/4

the long period of spring-summer dryness obscured changes in depletion rates between winter and summer seasons, hence, the dates for the beginning of summer are not comparable to those of the other localities.

50. For satisfactory predictions, additional data on transition dates were needed. During the periodic visits to the survey sites, the field parties took notes on such items as changes in weather and vegetation, occurrence of frost, bud and leaf development, and coloration and fall of leaves. These observations were used in conjunction with earlier information to select the transition dates for predictions at the survey sites given in table 5.

51. A consistent change in transition dates was shown with increase in latitude. Spring and summer dates were later and autumn and winter

Table 5

Transition Dates Determined for Survey Sites Regions

Survey Regions	Latitude deg	Transition Date (First Day of Season) Spring	Summer	Autumn	Winter
Southern	31.5	3/10	5/10	10/15	12/1
	34.0	3/17	5/10	10/15	12/1
Lake states	41.5	4/15	5/10	10/18	11/15
	44.0	4/20	5/18	10/10	11/1
	46.5	4/30	5/25	9/22	11/1
Intermountain					
4500-ft elevation	38.0	4/17	5/28	9/26	11/7
	41.0	4/20	6/1	9/20	11/1
	43.0	4/23	6/5	9/17	10/28
	46.0	5/13	6/11	9/8	10/18
7000-ft elevation	38.0	5/14	6/12	9/10	10/20
	41.0	5/14	6/10	9/12	10/25
	43.0	5/14	6/10	9/10	10/20
Northeastern					
Pennsylvania, New York, Connecticut		5/1	5/15	9/15	11/15
Massachusetts, New Hampshire, Vermont		5/1	5/20	9/15	11/15

dates earlier in the more northern latitudes. One set of dates was usually used for all sites located within a 2-1/2° band of latitude, or a band about 150 miles wide. In the intermountain region, allowance was made for an increase in elevation as well as latitude. At higher elevations, spring and summer are later, autumn and winter earlier.

52. The greatest difference in times of occurrence of a transition date (about two months) is in the beginning of spring. The other starting dates have a range of about a month. At the 7000-ft elevation in the intermountain region, dates were the same regardless of latitude, and they were all about the same as those at 4500-ft elevation and 46° latitude. Likewise, Fairbanks, Alaska, at 65° latitude and 500-ft elevation, had about the same summer and autumn starting dates, June 4 and September 15, as the

43^{o} latitude intermountain region. Thus, starting dates for the higher latitudes and elevations do not show the ranges that they do in the south. As a consequence, the duration of the summer season is the same at these northern locations. Apparently the cooler seasonal temperatures are compensated by the longer days at the higher latitudes.

PART III: APPLICATION OF TENTATIVE AVERAGE MOISTURE-PREDICTION RELATIONS

General Procedures Used

53. The applicability and reliability of the tentative average moisture-prediction relations were tested over a wide range of conditions by making predictions for a period of about one year on 651 sites located throughout the United States including Alaska. These sites consisted of three groups: 24 of the prediction development sites discussed in Report 4, 10 of the trafficability-university sites discussed in Report 3, and 617 of the survey sites discussed in Appendix B of this report. The first group was used to test the applicability of the tentative average relations on sites from which they had been derived. For the second group, weekly data were available for testing; for the last group, the survey sites, only monthly data were available.

54. The tentative average relations for these predictions were developed as follows. Field-maximum moisture contents were calculated for the prediction development sites and survey sites using equations 4 and 6 in paragraph 26. For the trafficability-university sites, equations 1 and 2 were used because the 0.06-atm tension values were not available. Field-minimum moisture contents of all sites were calculated from the equations in paragraph 30. A minimum-size storm of 0.10 in. was used throughout. The equations for the accretion relations are given in paragraph 38. Transition dates were selected with the dates listed in tables 4 and 5 used as guides. Summer depletion was determined from the average loss values of tables 2 and 3, using adjusted summer depletion. Winter and transition depletions for each site were selected from table A7, Appendix A of this report.

55. In the application of the average relations, the same procedures were followed as were used for the prediction development sites, given in detail in Report 4. A sample application of the average relations to a site without detailed records is described in Appendix A of this report.

56. Although the survey site records began in June 1954 and ended in June 1955, measurements were made throughout the winter only at the

southern survey sites. Hence, predictions were made for the entire period for the southern survey sites but were stopped at the beginning of winter for the other regions because of frozen soil. For the intermountain and lake states survey sites, predictions were started again in the spring, beginning with the first sampling date after frost had left the ground. Predictions for the northeastern survey sites were started when the soil thawed as indicated by the daily temperature record at the nearest weather station; moisture contents at that time were assumed to be at the field maximum.

57. Differences between predicted and measured moisture content were used to indicate accuracy of prediction. Twenty-three to 115 comparisons were available at each prediction development site, 20 to 51 at each trafficability-university site, and 4 to 7 at each survey site. The individual differences were averaged, regardless of sign, to determine the deviation for each site. The average deviations were compared considering differences in soil and site characteristics, and location.

Tests on Prediction Development Sites

58. The tentative average moisture prediction relations were applied to 24 prediction development sites having daily records of soil moisture taken with Fiberglas units. Rainfall was recorded continuously at each site. Predictions had already been made using specific relations derived from the data for each site (Report 4). Deviations of these predictions from actual moisture content are shown in the first two columns of table 6. Deviations of predictions made using the tentative average relations from actual moisture content are given in the next two columns. The number of comparisons are the same for the two sets of columns. As the number of comparisons are not the same as used previously when testing specific relations, the deviations may vary from those reported in earlier publications.

59. The deviations of predicted moisture contents using specific relations average 0.13 in. for the surface to 6-in. layer and 0.09 in. for the 6- to 12-in. layer. When the average relations were used the deviation was 0.26 and 0.23 in., respectively, for the two layers. The average

Table 6

Average Deviations, in Inches of Water, Between Measured Moisture Content and That Predicted From Specific and Tentative Average Relations

Site	Specific Relations: Surface to 6-in. Layer	Specific Relations: 6- to 12-in. Layer	Average Relations: Surface to 6-in. Layer	Average Relations: 6- to 12-in. Layer	No. of Comparisons	Wetness Index	Texture
Vicksburg, Miss.							
Park	0.14	0.08	0.12	0.12	83	2	Silt
Mound	0.10	0.07	0.18	0.27	50	4	Silt
Laurel, Miss.							
Eddins	0.14	0.09	0.34	0.27	25	4	Clay
State College, Miss.							
Vaiden	0.24	0.20	0.23	0.29	78	4	Clay
Oxford, Miss.							
Providence	0.18	0.12	0.26	0.16	40	2	Clay
Crossett, Ark.							
Headquarters, forest	0.27	0.10	0.24	0.26	74	4	Silt
Marianna, Fla.							
Lakeland	0.09	0.10	0.10	0.11	80	2	Sand
Union, S. C.							
Loblolly	0.13	0.09	0.30	0.43	83	2	S, C*
Poplar Bluff, Mo.							
Weldon, forest	0.07	0.05	0.35	0.16	64	2	Silt
Robbs, Ill.							
Grantsburg	0.12	0.13	0.33	0.26	42	2	Silt
Rhinelander, Wis.							
Sortek, herbaceous	0.26	0.19	0.36	0.25	49	4	Silt
Timber Lake	0.13	0.04	0.17	0.38	29	2	Sand
Miles City, Mont.							
River	0.11	0.11	0.20	0.29	23	3	Clay
Priest River, Idaho							
Meadow	0.23	0.20	0.37	0.24	32	4	Silt
Rockford, Wash.							
Couse, pine	0.16	0.10	0.28	0.28	36	3	Silt
California							
Bass Lake	0.11	0.08	0.33	0.22	23	2	S, C*
Tanbark, chaparral	0.19	0.10	0.13	0.22	46	2	Sand
Grand Junction, Colo.							
East Mesa	0.03	0.03	0.20	0.18	71	2	Silt
Pinon-Juniper	0.03	0.05	0.54	0.24	89	2	Sand
Delta, Colo.							
Aspen 2	0.04	0.04	0.34	0.13	43	2	Sand
Albuquerque, N. Mex.							
Pine Flat	0.10	0.03	0.21	0.19	115	2	Silt
Alaska							
Birch Hill	0.07	0.07	0.21	0.09	78	1	Silt
Golf course	0.06	0.06	0.18	0.12	72	2	Silt
Dairy	0.09	0.05	0.17	0.29	60	3	Silt
Average	0.13	0.09	0.26	0.23			

* Sand in the surface to 6-in. layer and clay in the 6- to 12-in. layer.

deviation increased about 0.13 in. for each layer when the tentative average relations were used.

60. In general, accuracy of prediction varies with texture and wetness index, as shown by weighted averages of the 24 sites in table 7. Accuracy is poorest for clay soils and wet soils.

Table 7

Average Deviations, in Inches of Water, Between Measured and Predicted Moisture Content for Prediction Development Sites Grouped by Texture and Wetness Index for Specific and Tentative Average Relations

	Sand		Silt		Clay		Average	
Wetness Index	Specific Relations	Tentative Avg Relations	Specific Relations	Tentative Avg Relations	Specific Relations	Tentative Avg Relations	Specific Relations	Tentative Avg Relations
			Surface to 6-in. Layer					
1	----	----	0.07	0.21	----	----	0.07	0.21
2	0.10	0.27	0.07	0.23	0.18	0.26	0.10	0.25
3	----	----	0.12	0.22	0.11	0.11	0.12	0.22
4	----	----	0.21	0.29	0.19	0.28	0.21	0.29
Avg	0.10	0.27	0.13	0.25	0.17	0.26	0.13	0.26
			6- to 12-in. Layer					
1	----	----	0.07	0.09	----	----	0.07	0.09
2	0.07	0.22	0.07	0.18	0.10	0.27	0.08	0.21
3	----	----	0.08	0.23	0.11	0.29	0.09	0.29
4	----	----	0.14	0.26	0.14	0.28	0.14	0.26
Avg	0.07	0.22	0.09	0.20	0.12	0.28	0.09	0.23

Tests on Trafficability-university Sites

61. At the sites established in cooperation with various universities in the early years of the project, soil strength and gravimetric moisture measurements were made weekly. Representative sites were selected to make another check on the accuracy of predictions made with the

Table 8

Average Deviations, in Inches of Water, Between Measured Moisture Content on Trafficability-university Sites and That Predicted Using Tentative Average Relations

Location	Surface to 6-in. Layer	6- to 12-in. Layer	No. Comparisons	Wetness Index
Union, S. C.				
Dwight	0.48	0.44	20	4
Carlisle	0.54	0.66	20	4
Boylston	0.27	0.22	43	3
Manning	0.13	0.09	41	3
Rapid City, S. Dak.				
Vale	0.28	0.29	49	3
Orman	0.38	0.26	49	3
Purdue, Ind.				
Crosby	0.24	0.30	51	3
Clyde	0.32	0.37		
Lincoln, Neb.				
Agricultural College	0.33	0.35	41	4
Emerald	0.32	0.27	41	2
Total average	0.33	0.32		

tentative average relations. Table 8 shows that, on the average, the deviations using average relations were greater than those for the prediction development sites, by about 0.08 in. per 6-in. layer. Part of the wider spread between predicted and measured moisture contents is due to the fact that tension values were not taken and, hence, the field-maximum values are probably not as accurately estimated. Part of the spread is also due to the wetness of most of the trafficability-university sites. For instance, the several South Carolina sites were located in heavy clay or where restricted drainage was evident. Depletions using the average relations were, therefore, much faster than actual, and considerable deviations accumulated. The prediction development sites discussed in paragraphs 58-60 showed greater deviations for wet sites than for drained sites, perhaps for the same reason.

Tests on Survey Sites

First prediction

62. The tentative average moisture-prediction relations were applied to 617 survey sites distributed in the southern, northeastern, lake states, and intermountain regions (Appendix B, fig. B1). Rain gages were not maintained at these sites; rainfall records needed for prediction were obtained from the nearest official weather station which was usually from one to five miles away from the site, and in some instances the distance was greater. The accuracy of prediction for these sites is shown below:

Survey Region	No. of Sites	Average Deviations Between Measured and Predicted Moisture Content in Inches	
		Surface to 6-in. Layer	6- to 12-in. Layer
Southern	178	0.33	0.29
Northeastern	135	0.54	0.49
Lake states	160	0.37	0.33
Intermountain	144	0.36	0.31
All survey sites	617	0.39	0.35

63. The accuracy of prediction for the survey sites is less than for the prediction development sites, the average deviation being 0.12 in. greater for each layer. This loss in accuracy can be attributed partly to a less accurate rainfall record as gages were located some distance from the sites, and partly to the extrapolation of the average relations into combinations of conditions not covered by the prediction development sites. In fact, the accuracy of prediction by survey region reflects the more complete coverage at the prediction development sites. The northeastern region, where poorest accuracy was obtained, had no prediction development sites; lake states, next in accuracy, had prediction development sites at only one location; intermountain, with better accuracy, had three locations; and southern, with the best accuracy had eight locations for prediction development sites at the time most of the tentative average relations were developed.

64. The average deviation of both soil layers for the survey sites, about 0.37 in. per 6-in. depth, is equivalent to about 4% to 6% moisture

content on the dry weight basis, depending on the bulk density (dry unit weight) of the soil. At high moisture contents this error would be too large for suitable applications to trafficability. The problem is, then, to identify the source of the error, and to correct the error with improved average relations. It may be found that correction or adjustment of factors applied to the average prediction relations may effect the desired improvement. For conditions not covered by the prediction development sites, such as different climate, soil material, or water-table effects, additional detailed soil-moisture measurements may be needed.

Re-evaluation of survey site data

65. Erratic data. Data from all the survey sites were carefully re-examined to determine causes for erratic deviations of some sites. As a result of this study, 16 sites that had too many erratic readings for successful prediction were eliminated. Many of these were in wet soils or in those with high organic content. These 16 sites are indicated in tables B2d, B3b, and B3d, Appendix B. Errors in bulk density that produced unreasonable moisture contents upon computation usually occurred for these sites. For instance, at one site 7 in. of water was computed to be held in a 6-in. layer of soil. Thirteen of these 16 sites were in the northeastern region and three in the intermountain. Their elimination left a total of 601 sites.

66. Wetness index. Wetness indexes were re-evaluated for the 601 remaining sites and some changes were made, which in turn changed the estimated field-maximum and -minimum values, and the depletion curves.

67. Irrigated and arid sites. Even with these adjustments, there was still some question about the validity of including certain intermountain sites in the analysis. The questionable sites included those that had been wet by irrigation at some time during the course of the survey, those desert sites that were continuously dry, and some sites that were continuously wet throughout the year by natural subirrigation from water tables. Average deviations for the intermountain sites in these categories may be compared in the following tabulation to the deviations of the sites wetted by rain and normally dried.

Intermountain Site Category	No. of Sites	Average Deviations Between Measured and Predicted Moisture Content in Inches: Surface to 6-in. Layer	Average Deviations Between Measured and Predicted Moisture Content in Inches: 6- to 12-in. Layer
Irrigated	24	0.25	0.22
Continuously dry	47	0.22	0.19
Continuously wet	17	0.77	0.68
Normal sites	53	0.29	0.25
All sites	141	0.32	0.28

68. For the 24 irrigated sites, prediction was not made through the time of irrigation because the exact time and amount of irrigation were not known. The record, therefore, was started again on the sampling date following each irrigation. This decreased the deviations because all cumulative errors were wiped out. Deviations of the continuously dry desert sites were also low, principally because the soil-moisture contents were continuously small. Deviations for the sites continuously wet from water tables were very high with an average of 0.77 and 0.68 in. for the surface to 6-in. and 6- to 12-in. layers, respectively. These wet sites were, however, not too dissimilar to wet sites in other survey regions. Because the data appeared to be correct and to represent naturally occurring conditions, and because their large deviations did not appear to be the result of instrumental or computational errors, it was decided to include all of these 141 sites, without additional adjustments, in further analyses.

Second prediction

69. A reprediction of the 601 survey sites was made. The average deviations of the repredicted from measured moisture contents were as follows:

Survey Region	No. of Sites	Average Deviations Between Measured and Repredicted Moisture Content in Inches: Surface to 6-in. Layer	Average Deviations Between Measured and Repredicted Moisture Content in Inches: 6- to 12-in. Layer
Southern	178	0.28	0.28
Northeastern	122	0.37	0.37
Lake states	160	0.38	0.33
Intermountain	141	0.32	0.28
All survey sites	601	0.33	0.31

70. Comparison of the average deviations for all sites with those tabulated in paragraph 62 shows that the adjustments that were made in wetness index and the deletion of erratic sites reduced the average deviations for the two soil layers by 0.06 and 0.04 in. of water. The greatest reduction occurred in the northeastern region, mostly because of the larger number of erratic sites eliminated in this region.

71. The reprediction indicates that accuracy by region is still directly related to the number of prediction development sites within each region. Accuracy for the southern region approaches that for the prediction development sites. For the surface to 6-in. layer the average deviation is 0.26 in. vs 0.28 in., and for the 6- to 12-in. layer, it is 0.23 vs 0.28 in., for the prediction development and survey sites, respectively. These moisture content differences are less than one per cent on the dry weight basis.

Studies to Determine the Source of Prediction Error

Source of major error

72. A simple analysis of the deviations was next carried out by grouping them in classes on the basis of soil properties and site characteristics in order to determine if prediction was less successful for certain groups of conditions than for others. Soil texture, wetness index, and organic content proved to have considerable significance. As these characteristics are related to one another, it is difficult to separate the importance of the individual factors by this method of analysis. For instance, low-lying, poorly drained sites would have wetness indexes of 4, would tend to have clay soils, and would be high in organic matter. Likewise, well-drained sites would have coarser soil material and less organic content.

73. Wetness index and texture. Table 9 shows that the deviations for clay soils were, in general, higher than those for the sandy or silty soils. This difference was more apparent in the surface to 6-in. layer than in the 6- to 12-in. layer. Prediction was also less accurate for poorly drained sites. The wet (index 4) sites, in general, have deviations of 0.10 in. greater than the less wet (index 3) sites, and there is an

Table 9

Deviations Between Measured and Predicted Moisture Content of Soils Grouped by Wetness Index and Texture

Site Characteristics		Surface to 6-in. Layer		6- to 12-in. layer	
Wetness Index	Texture	No. of Sites	Average Deviation in. of Water	No. of Sites	Average Deviation in. of Water
All	Sand	260	0.30	247	0.30
	Silt	127	0.30	105	0.29
	Clay	214	0.39	249	0.33
1	All	91	0.22	91	0.20
2		291	0.31	291	0.29
3		112	0.35	112	0.33
4		107	0.45	107	0.43
1	Sand	53	0.21	45	0.21
	Silt	17	0.23	12	0.22
	Clay	21	0.22	34	0.19
2	Sand	134	0.27	134	0.28
	Silt	65	0.31	48	0.29
	Clay	92	0.38	109	0.31
3	Sand	39	0.36	37	0.36
	Silt	23	0.26	23	0.26
	Clay	50	0.38	52	0.34
4	Sand	34	0.48	31	0.49
	Silt	22	0.34	22	0.37
	Clay	51	0.49	54	0.42
All 601 sites			0.33		0.31

even greater spread in deviations between them and the drier sites with wetness indexes of 1 and 2. It should be noted that on wetness-index-4 locations, the moisture contents of both sandy and clay soils are about equally difficult to predict. Predictions for the silt soils had a lower deviation than those of the other textures, but were still higher than for better drained sites.

74. Wetness index and organic matter. The presence of over 4% organic matter made accurate soil-moisture prediction more difficult when all sites were considered. Dry sites generally had less than 4% organic matter content and low deviation. For wet sites, there was very little relation in the surface to 6-in. layer between amount of organic matter and accuracy of prediction, but in the 6- to 12-in. layer, the trend

Table 10

Deviations Between Measured and Predicted Moisture Content of Soils Grouped by Wetness Index and Organic Matter

	Surface to 6-in. Layer			6- to 12-in. Layer		
Wetness Index	Organic Matter %	No. of Sites	Average Deviation in. of Water	Organic Matter %	No. of Sites	Average Deviation in. of Water
1				0.0- 0.9	52	0.21
	0.0- 1.9	63	0.22	1.0- 1.9	29	0.20
	2.0- 3.9	24	0.22	2.0- 3.9	9	0.19
	4.0- 5.9	3	0.23	4.0- 5.9	1	0.24
	6.0-15.0	1	0.11	6.0-13.0	0	----
2				0.0- 0.9	91	0.27
	0.0- 1.9	72	0.27	1.0- 1.9	99	0.31
	2.0- 3.9	121	0.30	2.0- 3.9	75	0.31
	4.0- 5.9	86	0.35	4.0- 5.9	26	0.37
	6.0-15.0	12	0.44	6.0-13.0	0	----
3				0.0- 0.9	50	0.30
	0.0- 1.9	34	0.27	1.0- 1.9	27	0.33
	2.0- 3.9	47	0.36	2.0- 3.9	22	0.35
	4.0- 5.9	29	0.40	4.0- 5.9	13	0.42
	6.0-15.0	2	0.78	6.0-13.0	0	----
4				0.0- 0.9	29	0.34
	0.0- 1.9	27	0.49	1.0- 1.9	34	0.44
	2.0- 3.9	31	0.39	2.0- 3.9	26	0.46
	4.0- 5.9	33	0.46	4.0- 5.9	15	0.48
	6.0-15.0	16	0.51	6.0-13.0	3	0.63
All sites				0.0- 0.9	222	0.27
	0.0- 1.9	196	0.28	1.0- 1.9	189	0.31
	2.0- 3.9	223	0.32	2.0- 3.9	132	0.34
	4.0- 5.9	151	0.38	4.0- 5.9	55	0.41
	6.0-15.0	31	0.39	6.0-13.0	3	0.63

seemed to be quite significant, as shown in table 10.

75. Water-table problem. Soils wet from a water table (wetness index 4) present one of the major problems in prediction of soil moisture. For the prediction development sites, it had been found that, by use of ground-water well data from these sites, periods of high water could be identified and prediction improved by not depleting during those periods. However, for the survey sites, or any sites where water-table characteristics are not known, a system has not yet been devised to predict time of occurrence of a water table that will influence moisture conditions in

the surface to 12-in. layer, nor the duration of this influence. It was also found that errors in soil-moisture content as determined by gravimetric samples sometimes occur in sampling very wet soils, hence both the prediction and measured values may be in error and contribute to the large deviations of wetness-index-4 sites.

76. Duration of wet conditions. The wetness index was devised to classify the degree of wetting of a soil, an intensity factor, without specifying the duration of the wet conditions. The effect of the duration was shown by grouping the sites by the number of times wet soils were sampled during the period of record. Table 11 shows that deviations were

Table 11

Deviation Between Measured and Predicted Moisture Content Based on the Frequency of Wet Periodic Moisture Samples

	Surface to 6-in. Layer		6- to 12-in. Layer	
No. of Wet Samples*	No. of Sites	Average Deviation in. of Water	No. of Sites	Average Deviation in. of Water
All dry	137	0.27	128	0.27
1 or 2 wet	190	0.29	184	0.25
3 or 4 wet	193	0.32	158	0.29
5 to 8 wet	81	0.55	131	0.48

* A sample is considered as "wet" if moisture content is 80% or more of the calculated field maximum.

greater for those sites where the moisture content of most of the samples was higher than 80% of calculated field maximum. Again, this indicates that the prediction and perhaps measurement of the moisture content are far more difficult for wet soils than for drier soils.

Source of minor error

77. Vegetation. Deviations between measured and predicted moisture content based on vegetation groupings were very similar for all classes except for desert shrub and bare areas, as shown in table 12. The desert shrub class, with an average deviation of 0.20 in. for both layers, had the lowest deviations. This class included most of the desert sites of the intermountain region where there was little fluctuation in the moisture content. The bare areas, with 0.92 and 0.58 in. for the surface to 6-in. and 6- to 12-in. layers, had the highest deviations. There were only six

Table 12

Deviation Between Measured and Predicted Moisture Content of Sites Grouped by Various Minor Factors

Site Characteristics	Surface to 6-in. Layer		6- to 12-in. Layer	
	No. of Sites	Average Deviation in. of Water	No. of Sites	Average Deviation in. of Water
Vegetation				
Herbaceous	408	0.34	408	0.32
Herbaceous and trees	22	0.37	22	0.32
Hardwood	57	0.32	57	0.30
Hardwood and conifer	24	0.29	24	0.29
Conifer	45	0.29	45	0.30
Desert shrub	39	0.20	39	0.20
Bare	6	0.92	6	0.58
Slope				
Lower flat 0-3%	105	0.42	105	0.38
Upper flat 0-3%	339	0.32	339	0.30
4-9%	108	0.30	108	0.29
10-35%	49	0.30	49	0.30
Position				
Bottom	110	0.42	110	0.39
Terrace	167	0.31	167	0.29
Upland	324	0.31	324	0.29
Elevation				
0-1000 ft	312	0.31	312	0.31
1001-4000 ft	173	0.36	173	0.33
4001-5000 ft	59	0.36	59	0.31
5001-6500 ft	47	0.29	47	0.27
6501-10,000 ft	10	0.27	10	0.26
Latitude				
30°00'-32°30'	102	0.29	102	0.28
32°31'-35°00'	76	0.26	76	0.27
37°00'-40°00'	39	0.28	39	0.28
40°01'-42°30'	161	0.39	161	0.36
42°31'-45°00'	157	0.32	157	0.29
45°01'-47°30'	66	0.39	66	0.34
Parent material				
Glacial	167	0.38	167	0.35
Alluvial	239	0.34	239	0.32
Loessial	88	0.28	88	0.26
Residual sedimentary	15	0.33	15	0.27
Residual igneous	7	0.22	7	0.22
Residual unconsolidated	72	0.25	72	0.27
Miscellaneous	13	0.51	13	0.36
Stone content				
None	472	0.33	467	0.32
1-5% by volume	80	0.31	73	0.28
6-15% by volume	23	0.30	31	0.29
16-40% by volume	26	0.40	30	0.33
Liquid limit				
Nonplastic			217	0.31
1-30			129	0.27
31-50			213	0.32
51-80			42	0.39
Plasticity index				
Nonplastic			217	0.31
1-7			81	0.29
8-21			243	0.30
22-50			60	0.36

sites in this class and these included several playas of the intermountain survey sites that were continuously wet. No allowance was made in the tentative average relations for continuously wet sites or nonvegetated sites. Therefore wet sites, such as the playas, were depleted as though they were well drained, and a large difference occurred between measured and predicted moisture contents.

78. Slope. Various degrees of slope showed very little differences in average deviation. However, there were but 49 sites on slopes greater than 10% and the aspect of slope was not considered. Sites in the lower flats (0-3% slope class) with their higher water tables and higher organic matter contents showed the expected higher deviations.

79. Topographical position. Deviations based on position showed upland and terrace deviations to be about the same, roughly 0.30 in. for each layer. The bottomland sites had deviations about 0.10 in. higher, again reflecting the influence of the sites with a wetness index of 4.

80. Elevation and latitude. Differences in deviations of predicted from measured moisture content based on different groups of elevations were insignificant. Based on latitude, deviations were greater at latitudes north of 40°.

81. Parent material. Glacial and alluvial soils had higher deviations than residual or loessial soils.

82. Stone content. About 80% of the survey sites were free of stones. Deviations for sites with stone contents below 15% by volume were very similar, but were somewhat higher for stone contents greater than 15% by volume.

83. Atterberg limits. Average deviations for the 6- to 12-in. layer were larger for soils with a liquid limit greater than 50. Deviations also increased for this layer when plasticity index values were above 21.

Regional effects

84. Wetness index. Grouping sites by regions, average deviations increased as the wetness index increased. The same relation held throughout all the regions but was perhaps greater in the intermountain region where natural subirrigation caused some sites to remain continuously wet even though rainfall and soil type would indicate considerable drying.

This prolonged wet condition increased deviations for some of the wetness-index-3 and many of the wetness-index-4 sites; see table 13.

Table 13

Deviations Between Measured and Predicted Moisture Content of Soils Grouped by Wetness Index and Regions

Wetness Index	Region: Southern No. of Sites	Southern Avg Dev in. of Water	Northeastern No. of Sites	Northeastern Avg Dev in. of Water	Lake States No. of Sites	Lake States Avg Dev in. of Water	Intermountain No. of Sites	Intermountain Avg Dev in. of Water	All Surveys No. of Sites	All Surveys Avg Dev in. of Water
				Surface to 6-in. Layer						
1	32	0.23	3	0.15	2	0.24	54	0.22	91	0.22
2	48	0.25	66	0.32	125	0.35	52	0.28	291	0.31
3	58	0.25	22	0.42	21	0.46	11	0.50	112	0.35
4	40	0.37	31	0.46	12	0.54	24	0.55	107	0.45
				6- to 12-in. Layer						
1	32	0.22	3	0.21	2	0.26	54	0.19	91	0.20
2	48	0.27	66	0.32	125	0.31	52	0.24	291	0.29
3	58	0.27	22	0.43	21	0.37	11	0.37	112	0.33
4	40	0.35	31	0.46	12	0.43	24	0.53	107	0.43

85. Texture. Deviations for clay soils of the southern survey sites were not as large as those of other regions. In the lake states, silts gave considerable difficulty in prediction, as shown in table 14.

Table 14

Deviations Between Measured and Predicted Moisture Content of Soils Grouped by Texture and Regions

Soil Texture	Region: Southern No. of Sites	Southern Avg Dev in. of Water	Northeastern No. of Sites	Northeastern Avg Dev in. of Water	Lake States No. of Sites	Lake States Avg Dev in. of Water	Intermountain No. of Sites	Intermountain Avg Dev in. of Water	All Surveys No. of Sites	All Surveys Avg Dev in. of Water
				Surface to 6-in. Layer						
Sand	69	0.26	62	0.32	68	0.33	61	0.28	260	0.30
Silt	60	0.25	11	0.24	36	0.40	20	0.26	127	0.30
Clay	49	0.32	49	0.46	56	0.41	60	0.37	214	0.39
				6- to 12-in. Layer						
Sand	61	0.27	62	0.38	67	0.31	57	0.25	247	0.30
Silt	53	0.25	11	0.38	27	0.36	14	0.25	105	0.29
Clay	64	0.31	49	0.36	66	0.34	70	0.31	249	0.33

86. Texture separate from water table. The effect of texture separate from that of water table was next examined by comparing only those sites with a wetness index of 2. On the average, for all regions, predictions for sands had the lowest deviations, the silts the next, and the clay soils had the highest error. This trend held for both layers, with less difference between groups in the 6- to 12-in. layer; see table 15. This general trend was found in all regions except that occasionally the silt soils were out of line.

Table 15

Deviations Between Measured and Predicted Moisture Content of Wetness-index-2 Sites Grouped by Texture and Regions

	Region									
	Southern		Northeastern		Lake States		Intermountain		All Surveys	
Soil Texture	No. of Sites	Avg Dev in. of Water	No. of Sites	Avg Dev in. of Water	No. of Sites	Avg Dev in. of Water	No. of Sites	Avg Dev in. of Water	No. of Sites	Avg Dev in. of Water
				Surface to 6-in. Layer						
Sand	20	0.23	33	0.22	57	0.31	24	0.26	134	0.27
Silt	19	0.21	8	0.27	30	0.40	8	0.28	65	0.31
Clay	9	0.41	25	0.48	38	0.36	20	0.30	92	0.38
				6- to 12-in. Layer						
Sand	15	0.24	36	0.29	58	0.30	25	0.23	134	0.28
Silt	14	0.18	7	0.35	21	0.31	6	0.27	48	0.29
Clay	19	0.36	23	0.36	46	0.31	21	0.24	109	0.31

87. Organic matter. There was a marked increase in average deviations as organic matter increased in three regions. The apparent lack of this trend at the southern survey sites may have been due in part to the infrequent occurrence of samples in the high organic classes; see table 16.

Table 16

Deviations Between Measured and Predicted Moisture Content of Soils Grouped by Organic Matter and Regions

Organic Matter %	Region: Southern No. of Sites	Southern Avg Dev in. of Water	Northeastern No. of Sites	Northeastern Avg Dev in. of Water	Lake States No. of Sites	Lake States Avg Dev in. of Water	Intermountain No. of Sites	Intermountain Avg Dev in. of Water	All Surveys No. of Sites	All Surveys Avg Dev in. of Water
Surface to 6-in. Layer										
0.00 to 1.99	104	0.26	15	0.29	19	0.33	58	0.31	196	0.28
2.00 to 3.99	62	0.29	43	0.37	65	0.33	53	0.29	223	0.32
4.00 to 5.99	9	0.33	50	0.39	68	0.41	24	0.33	151	0.38
6.00 to 15.00	3	0.31	14	0.43	8	0.60	6	0.57	31	0.49
6- to 12-in. Layer										
0.00 to 0.99	132	0.26	12	0.36	40	0.29	38	0.25	222	0.27
1.00 to 1.99	39	0.33	36	0.35	49	0.31	65	0.27	189	0.31
2.00 to 3.99	5	0.26	53	0.36	45	0.34	29	0.30	132	0.34
4.00 to 5.99	2	0.31	19	0.41	26	0.41	8	0.45	55	0.41
6.00 to 13.00	0	----	2	0.71	0	----	1	0.47	3	0.63

PART IV: CONCLUSIONS AND RECOMMENDATIONS

Conclusions

88. The conclusions drawn from the analysis presented in this report are as follows:

a. The method for predicting soil-moisture content developed from sites with sufficient data to define the moisture regime can be applied successfully to other sites for which sufficient data are not available to define the moisture regime.

b. A tentative set of average relations derived from factors and relations for specific sites can be successfully applied to a variety of sites.

c. The accuracy of prediction using the tentative set of average relations is fairly satisfactory on the average as shown below. The accuracy from individually derived relations is shown on the first line for comparison.

	No. Sites	Average Deviation, in Inches of Water, Between Measured and Predicted Moisture Content: Surface to 6-in. Layer	Average Deviation, in Inches of Water, Between Measured and Predicted Moisture Content: 6- to 12-in. Layer
Prediction development sites (table 6)			
Specific relations	24	0.13	0.09
Tentative average relations	24	0.26	0.23
Trafficability-university sites (table 8)			
Tentative average relations	10	0.33	0.32
Survey sites (par. 69)			
Tentative average relations	601	0.33	0.31

d. The accuracy is not satisfactory for poorly drained and wet sites, and for soils high in organic content and clay as indicated for the survey sites.

Site Characteristics	Average Deviation, in Inches of Water, Between Measured and Predicted Moisture Content: Surface to 6-in. Layer, No. of Sites	Surface to 6-in. Layer, Average Deviation	6- to 12-in. Layer, No. of Sites	6- to 12-in. Layer, Average Deviation
Drained sites	382	0.29	382	0.27
Sites with water table	219	0.40	219	0.38
Organic content, <4%	419	0.30	543	0.30
Organic content, >4%	182	0.38	58	0.42
Sand soil	260	0.30	247	0.30
Silt soil	127	0.30	105	0.29
Clay soil	214	0.39	249	0.33

Recommendations

89. To improve the accuracy of soil-moisture content prediction by refinement or modification of the tentative average relations, it is recommended that the studies described in the following paragraphs be pursued.

a. Correlation studies relating soil and site factors to prediction relations derived from sites with detailed moisture data should be continued in order to make the tentative averages more selective for particular soil and site conditions.

b. Further studies should be made of soils wet by water tables to determine what soils and sites are influenced by water tables, and the time of occurrence and duration of the water-table effect.

c. Studies should also be conducted to improve prediction of other problem soils, such as mineral soils with more than 4% organic content, clay soils, pan soils with perched water tables, and stony soils.

d. Studies should be continued to systematize the selection of transition dates, considering, in particular, climatological and phenological methods.

90. To further the over-all objective of predicting trafficability by remote means, the following studies are recommended:

a. Investigations or improvements of methods and equipment for measuring moisture content under wet conditions, and density, as the conventional means are fallible under extreme conditions critical to trafficability.

b. Studies of horizontal and vertical variation in physical

properties of soils that affect soil moisture and strength so that areal accuracy of trafficability forecasts can be ascertained.

c. Laboratory studies of natural soils with controlled water-table levels to expedite and increase precision of moisture-strength measurements under very wet conditions for diverse soils.

d. Specific studies of soil moisture and strength for partly frozen and thawing soils as these represent a special wet condition.

e. Correlation studies among physical properties of soil and with soil moisture-strength relations in order to adapt trafficability forecasts to a variety of soil conditions.

f. Studies to develop criteria for describing sites in uniform terms for forecasting trafficability, and procedures for applying trafficability forecasts over small and large areas. Preliminary maps of local areas should be made to demonstrate these developments.

g. Exploration of the use of vegetation analogs, as well as climatic, geologic, and pedologic conditions as a means of extending knowledge of trafficability of soils to broader areas.

APPENDIX A: TENTATIVE AVERAGE SOIL-MOISTURE PREDICTION RELATIONS AND A SAMPLE OF THEIR APPLICATION

1. This appendix illustrates the use of the tentative average relations developed for predicting the moisture content in the surface to 6-in. and 6- to 12-in. layers of a variety of soils in the United States. The relations include the field-maximum and -minimum moisture contents, transition dates, minimum-size storm, accretion relations, and depletion relations. The tentative average relations for most* of the soil, climate, and hydrologic conditions found in the United States are presented in the form of tables, and the selection from them of the averages to use in a prediction for a particular site is explained.

Sample Prediction

2. This sample prediction is presented in a simplified form with each step shown in detail. The site chosen for the illustration is Survey Site 246, located in the southern region near Holly Springs, Miss. A description of the site including soil properties is given in Appendix B.

3. Soil-moisture prediction is facilitated by use of a form such as fig. A1. Across the top of this form are four boxes containing information concerning the site. Box 1 gives the general location information, date of computation, and computer's initials. Box 2 gives the field-maximum and -minimum moisture contents for the two 6-in. soil layers. The field-maximum values were calculated from equations 4 and 6 of table A1 and the field minimum from equations 7 and 8. In box 3, the latitude of the site and transition dates for this latitude are listed from table A2; spring depletion starts on March 17. In box 4, the soil texture of each layer is given so that depletions can be selected. The depletion factors are selected from table A6 considering the field-maximum and -minimum values in box 2. The average depletion relations for the sample prediction site are then listed on a form as shown in fig. A2. Their selection and derivation

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* The average relations do not apply to soils in arid regions, organic soils, or to sites where the surface to 12-in. layer is affected by a stationary water table for two days or longer.

Box 1	
Region	Southern
Site No.	246
Weather Sta	Holly Springs, Miss.
Observation time	7:00 A.M.
Date	Initials of Computer

Box 2		
Soil Layer in.	Selected Moisture Con Field Max	Field Min
0-6	2.50	0.80
6-12	2.70	1.10

Box 3	
Latitude	34°
Transition Dates	
Spring	3/17
Summer	5/10
Autumn	10/15
Winter	12/1

Box 4	Soil Layer, in. 0-6	6-12
Soil Texture:	SiL	SiL
Depletion Relation Factor:	0.909	0.982

	1	2	3	4		5		6	7		8		9	
Line	Date	Rain-fall in.	Days of Depl	MC Day Before Event in. 0-6	6-12	Available Storage in. 0-6	6-12	Accr Class	Accretion in. 0-6	6-12	MC after Event, in. 0-6	6-12	Measured Soil-moisture Content, in. 0-6	6-12
1	3/2/54	*									2.32	2.60	2.32	2.60
2	3	0.39	0	2.32	2.60	0.18	0.10	II	0.09	0.04	2.41	2.64		
3	17	**	13	2.13	2.47									
4	19	0.31	2	2.05	2.41	0.45	0.29	I	0.14	0.06	2.19	2.47		
5	23	0.16	3	2.06	2.38	0.44	0.32	I	0.07	0.03	2.13	2.41		
6	26	0.41	2	2.05	2.35	0.45	0.35	I	0.18	0.08	2.23	2.43		
7	26	*	0								2.23	2.43	2.42	2.60
8	4/1	0.42	5	2.02	2.28	0.48	0.42	I	0.19	0.08	2.21	2.36		

* Sampling date.
** Transition date.

Fig. A1. Soil-moisture prediction form showing data derived in sample prediction for site 246, Holly Springs, Mississippi

Depletion, in. of Moisture, for Site 246											
Surface to 6-in. Layer						6- to 12-in. Layer					
Days Depletion	Summer			Trans. Depl.	Winter Depl.	Days Depletion	Summer			Trans. Depl.	Winter Depl.
	Avg Loss	Adj Loss	Depl.				Avg Loss	Adj Loss	Depl.		
0	----	----	2.50	2.50	2.50	0	----	----	2.70	2.70	2.70
1	0.15	0.14	2.36	2.41	2.45	1	0.11	0.11	2.59	2.65	2.67
2	0.29	0.26	2.24	2.33	2.41	2	0.21	0.21	2.49	2.61	2.65
3	0.40	0.36	2.14	2.28	2.38	3	0.28	0.27	2.43	2.57	2.63
4	0.51	0.46	2.04	2.23	2.35	4	0.35	0.34	2.36	2.54	2.61
5	0.61	0.55	1.95	2.18	2.32	5	0.41	0.40	2.30	2.51	2.59
6	0.69	0.63	1.87	2.13	2.29	6	0.47	0.46	2.24	2.48	2.57
7	0.77	0.70	1.80	2.09	2.26	7	0.53	0.52	2.18	2.45	2.56
8	0.85	0.77	1.73	2.05	2.23	8	0.59	0.58	2.12	2.42	2.55
9	0.92	0.84	1.66	2.02	2.21	9	0.65	0.64	2.06	2.39	2.54
10	1.00	0.91	1.59	1.98	2.19	10	0.71	0.70	2.00	2.36	2.53
11	1.08	0.98	1.52	1.95	2.17	11	0.76	0.75	1.95	2.33	2.52
12	1.16	1.05	1.45	1.91	2.16	12	0.81	0.80	1.90	2.30	2.51
13	1.23	1.12	1.38	1.88	2.15	13	0.86	0.84	1.86	2.27	2.50
14	1.30	1.18	1.32	1.84	2.14	14	0.91	0.89	1.81	2.24	2.49
15	1.37	1.25	1.25	1.81	2.13	15	0.96	0.94	1.76	2.22	2.48
16	1.43	1.30	1.20	1.77	2.12	16	1.01	0.99	1.71	2.19	2.47
17	1.48	1.35	1.15	1.74	2.11	17	1.06	1.04	1.66	2.16	2.46
18	1.53	1.39	1.11	1.70	2.10	18	1.11	1.09	1.61	2.14	2.46
19	1.57	1.43	1.07	1.67	2.09	19	1.15	1.13	1.57	2.11	2.45
20	1.61	1.46	1.04	1.65	2.09	20	1.19	1.17	1.53	2.09	2.45
21	1.64	1.49	1.01	1.62	2.09	21	1.22	1.20	1.50	2.06	2.44
22	1.66	1.51	0.99	1.60	2.09	22	1.25	1.23	1.47	2.04	2.44
23	1.68	1.53	0.97	1.57	2.09	23	1.28	1.26	1.44	2.01	2.43
24	1.70	1.55	0.95	1.55	2.09	24	1.31	1.29	1.41	1.99	2.43
25	1.72	1.56	0.94	1.53	2.08	25	1.34	1.32	1.38	1.96	2.42
26	1.74	1.58	0.92	1.50	2.08	26	1.37	1.35	1.35	1.94	2.42
27	1.76	1.60	0.90	1.48	2.08	27	1.40	1.37	1.33	1.91	2.42
28	1.78	1.62	0.88	1.46	2.08	28	1.42	1.39	1.31	1.89	2.41
29	1.80	1.64	0.86	1.44	2.08	29	1.44	1.41	1.29	1.87	2.41
30	1.82	1.65	0.85	1.42	2.08	30	1.46	1.43	1.27	1.85	2.41
35	1.84	1.67	0.83	1.36		35	1.52	1.49	1.21	1.75	2.40
40	1.86	1.69	0.81	1.30		40	1.57	1.54	1.16	1.67	2.40
45	1.86	1.69	0.81	1.25		45	1.59	1.56	1.14	1.63	
50	1.87	1.70	0.80	1.20		50	1.61	1.58	1.12	1.60	
						55	1.62	1.59	1.11		
						60	1.63	1.60	1.10		

Fig. A2. Depletion tabulation for site 246, Holly Springs, Mississippi

are explained in paragraph 13 (page A10) which describes the use of tables A5, A6, and A7.

4. In this example, prediction begins in the winter period, on March 2, 1954, when moisture contents were determined by sampling. These values are entered on line 1, column 8, of fig. A1.

5. The Holly Springs weather substation record shows that the first

storm of the period, a 0.39-in. rain, occurred on March 3. The moisture content values of 2.32 and 2.60 in., for March 2, the day before the storm, are repeated in column 4, line 2, and are now subtracted from the field-maximum moisture contents of 2.50 and 2.70 in., found in box 2. The remainders are values of available storage and are entered in column 5. Since the 0.39-in. rainfall of March 3, column 2, line 2, is greater than the total available storage of 0.28 in. for the two layers, the storm is considered to give a Class II accretion, which is entered in column 6, line 2.

6. From Class II accretion relations (table A4) and opposite available storages of 0.18 and 0.10 in., accretions may be read as 0.09 and 0.04 in. for the upper and lower layers, respectively. These values are entered in column 7 on line 2 of the prediction form under the proper layer designations. These amounts are now added to the moisture contents of the soil on March 2 and which are noted in column 4. Adding 0.09 and 2.32 in. brings the moisture content up to 2.41 in. for the surface to 6-in. layer. This is entered in column 8. Similarly, the 0.04-in. accretion is added to the 2.60 in. noted in column 4, and the total of 2.64 in. for the 6- to 12-in. layer is also entered in column 8.

7. March 17 is the first day of the spring period (box 3 of fig. A1). No rainfall occurred for the 13 days between March 3 and March 17. This is entered in column 3, "Days of Depletion." The 13 days are March 4 to 16, inclusive; no depletion is included for March 3, a day of rainfall, nor for March 17, which is included in the subsequent period of transition depletion. Moisture contents or moisture depletions for the period March 3 to March 17 are read from the winter depletion columns in fig. A2. The 2.41 value is located in the winter column for the surface to 6-in. layer. From that point, the value is depleted down the column for 13 days (the interstorm period), to the value of 2.13 in. Similarly, in the 6- to 12-in. layer, under the winter column of fig. A2, the value 2.64 (which actually would lie halfway between 2.63 and 2.65 on the figure) is depleted down the column for 13 days where, again interpolating between two figures, the value 2.47 in. is found.

8. The second storm of the period, a 0.31-in. rain, occurred on March 19, two days after the beginning of the spring period. Depletions

for these two days, March 17 and 18, are read from the "Transition" columns of fig. A2, by entering the table at the 2.13 and 2.47 values and reading down two days, giving predicted moisture-content values of 2.05 and 2.41 in. for the surface to 6-in. and 6- to 12-in. layers on March 18 before the storm. These values are entered in column 4, line 4, in fig. A1. These are subtracted from the field-maximum moisture contents to get available storage of 0.45 and 0.29 in. for the two layers (see column 5, line 4). The total available storage is now 0.74 (0.45 plus 0.29) which is greater than the rainfall of 0.31 in. that occurred on March 19 (column 2, line 4) so this storm is considered to give a Class I accretion and that fact is noted in column 6, line 4. From Class I average accretion relations, table A3, at 0.31-in. rainfall, accretions are 0.14 and 0.06 in. for the two layers, respectively, and these are entered in column 7, line 4. These values are added to the moisture content before the storm to give the predicted content of 2.19 and 2.47 in. for the two layers on March 19.

9. The storms that followed on March 23 and 26 are handled in a similar manner. The predicted values derived for March 26 are 2.23 and 2.43 in. This is noted in column 8, line 7. On that date actual measurements were made to check the prediction system. Measured moisture contents proved to be 2.42 for the surface to 6-in. layer and 2.60 for the 6- to 12-in. layer; these values are noted in column 9. By subtraction, it is calculated that the deviations between predicted and measured soil moisture are 0.19 for the surface to 6-in. layer and 0.17 for the 6- to 12-in. layer. This method is followed throughout the year for a given site.

10. This sample demonstrates how a prediction is made and how tables of averages may be applied to a site to give a reasonable prediction of the moisture content. If rainfall records taken at the site had been used instead of records from the nearest Weather Bureau Station, and if relations derived specially for that site had been used, the deviation of measured from calculated moisture content would have been much less.

11. If this particular site had been on a wet area or an area with a reasonably large amount of organic matter, the deviations between predicted and actual might have been much larger. Also, if these predictions had been made for an area that, at the time, was thawing or partially frozen, or had an underlying layer of frozen ground, the deviations

between measured and predicted would probably have been much larger.

Tables for Approximating Field-maximum and -minimum Moisture Contents, Transition Dates, and Accretion Values

12. The tables of tentative average relations for field-maximum and -minimum moisture contents, transition dates, and values for Class I and II accretions, with explanations of their application, follow. A minimum-size storm of 0.10 in. is used. Studies presently under way are designed to improve the tables, thus making predicted and measured values much closer. It is also entirely probable that additional tables will have to be constructed and modifications made in procedures for specific situations such as wet soils, or intermittently frozen soils, so that less deviation will occur.

Table A1

Equations for Approximating Field-maximum and -minimum Soil-moisture Contents

FIELD MAXIMUM, IN.	
Without 0.06-atm tension values	
Surface to 6-in. layer = +2.06 - 0.011 S + 0.116 OM + 0.151 WI	(1)
6- to 12-in. layer = +2.06 - 0.012 S + 0.008 C + 0.155 WI	(2)
With 0.06-atm tension values	
Surface to 6-in. layer = -0.31 + 1.042 T	(3)
Surface to 6-in. layer = +0.68 - 0.006 S + 0.077 WI + 0.737 T	(4)
6- to 12-in. layer = +0.20 + 0.897 T	(5)
6- to 12-in. layer = +0.83 - 0.006 S + 0.007 C + 0.134 WI + 0.492 T	(6)
FIELD MINIMUM, IN.	
Surface to 6-in. layer = -0.013 + 0.007 C + 0.074 OM + 0.149 WI	(7)
6- to 12-in. layer = +0.131 + 0.017 C + 0.044 OM + 0.119 WI	(8)

Note: S = sand, %; C = clay, %; OM = organic matter, %; WI = wetness index; T = moisture content, in./6 in. of soil, at 0.06-atm tension

In order to approximate the field-maximum and -minimum values from equations 1-8, knowledge of soil texture, organic content, and site wetness index is needed. Measurements of these properties can be obtained from soil samples and observations made at the site, or estimates can be made from previous surveys or maps.

To solve the equations, multiply the value of each soil property by the proper coefficient in the equations. Use per cent as a whole number: 5% is 5, not 0.05. Add the products and the equation constant algebraically. Note that the sand products and one of the constants are negative. Round the results to the nearest tenth of an inch.

If the estimated field maximum exceeds the total pore space derived from bulk density and specific gravity, the total pore space is used for the maximum.

Table A2

Average Transition Dates for Various Regions in the United States

Region	Latitude deg	Transition Date (First Day of Season) Spring	Summer	Autumn	Winter
Southern	32	3/10	5/10	10/15	12/1
	34	3/17	5/10	10/15	12/1
Lake states	42	4/15	5/10	10/18	11/15
	44	4/20	5/18	10/10	11/1
	46	4/30	5/25	9/22	11/1
Intermountain					
4500-ft elevation	38	4/17	5/28	9/26	11/7
	41	4/20	6/1	9/20	11/1
	43	4/23	6/5	9/17	10/28
	46	5/13	6/11	9/8	10/18
7000-ft elevation	38	5/14	6/12	9/10	10/20
	41	5/14	6/10	9/12	10/25
	43	5/14	6/10	9/10	10/20
Northeastern					
Pennsylvania, New York, Connecticut, Massachusetts, New Hampshire, Vermont		5/1	5/15	9/15	11/15
		5/1	5/20	9/15	11/15

Note: Selection of transition dates is based on previous observations of and information concerning a site and current observations of the area under consideration. The dates listed above were determined from observations made during 1954-1955 over various regions, and can be used as a guide in the selection of dates. Observation of vegetative development is needed to help select the spring date.

Table A3

Average Accretion Values for All Sites, Inches of Water

Class I Accretions

Surface to 6-in. Layer						6- to 12-in. Layer					
Precip	Accr	Precip	Accr	Precip	Accr	Precip	Accr	Precip	Accr	Precip	Accr
0.10	0.04	0.60	0.27	1.10	0.51	0.10	0.01	0.60	0.12	1.10	0.23
0.12	0.05	0.62	0.28	1.12	0.52	0.12	0.02	0.62	0.13	1.12	0.24
0.14	0.06	0.64	0.29	1.14	0.53	0.14	0.02	0.64	0.13	1.14	0.24
0.16	0.07	0.66	0.30	1.16	0.54	0.16	0.03	0.66	0.14	1.16	0.25
0.18	0.07	0.68	0.31	1.18	0.54	0.18	0.03	0.68	0.14	1.18	0.25
0.20	0.08	0.70	0.32	1.20	0.55	0.20	0.03	0.70	0.14	1.20	0.25
0.22	0.09	0.72	0.33	1.22	0.56	0.22	0.04	0.72	0.15	1.22	0.26
0.24	0.10	0.74	0.34	1.24	0.57	0.24	0.04	0.74	0.15	1.24	0.26
0.26	0.11	0.76	0.35	1.26	0.58	0.26	0.05	0.76	0.16	1.26	0.27
0.28	0.12	0.78	0.36	1.28	0.59	0.28	0.05	0.78	0.16	1.28	0.27
0.30	0.13	0.80	0.37	1.30	0.60	0.30	0.06	0.80	0.17	1.30	0.28
0.32	0.14	0.82	0.38	1.32	0.61	0.32	0.06	0.82	0.17	1.32	0.28
0.34	0.15	0.84	0.38	1.34	0.62	0.34	0.06	0.84	0.17	1.34	0.28
0.36	0.16	0.86	0.39	1.36	0.63	0.36	0.07	0.86	0.18	1.36	0.29
0.38	0.17	0.88	0.40	1.38	0.64	0.38	0.07	0.88	0.18	1.38	0.29
0.40	0.18	0.90	0.41	1.40	0.65	0.40	0.08	0.90	0.19	1.40	0.30
0.42	0.19	0.92	0.42	1.42	0.66	0.42	0.08	0.92	0.19	1.42	0.30
0.44	0.20	0.94	0.43	1.44	0.67	0.44	0.09	0.94	0.20	1.44	0.31
0.46	0.21	0.96	0.44	1.46	0.68	0.46	0.09	0.96	0.20	1.46	0.31
0.48	0.22	0.98	0.45	1.48	0.69	0.48	0.10	0.98	0.21	1.48	0.32
0.50	0.23	1.00	0.46	1.50	0.69	0.50	0.10	1.00	0.21	1.50	0.32
0.52	0.23	1.02	0.47	1.52	0.70	0.52	0.10	1.02	0.21	1.52	0.32
0.54	0.24	1.04	0.48	1.54	0.71	0.54	0.11	1.04	0.22	1.54	0.33
0.56	0.25	1.06	0.49	1.56	0.72	0.56	0.11	1.06	0.22	1.56	0.33
0.58	0.26	1.08	0.50	1.58	0.73	0.58	0.12	1.08	0.23	1.58	0.34

$\hat{Y} = 0.47 X - 0.01$ $\qquad$ $\hat{Y} = 0.22 X - 0.01$

where $\hat{Y}$ = predicted accretion

X = rainfall

Note: This table is used if the amount of rainfall is less than the amount of available storage in the surface to 12-in. layer. Do not use rainfall less than the minimum-size storm of 0.10 in. The formulas at the end of the tabulation are for use when precipitation exceeds the values in the table. This table can be used for all sites regardless of soil, vegetation, climate, or topography.

Table A4

Average Accretion Values for All Sites, Inches of Water

Class II Accretions

Surface to 6-in. Layer						6- to 12-in. Layer					
Avail. Stor	Accr	Avail. Stor	Accr	Avail. Stor	Accr	Avail. Stor	Accr	Avail. Stor	Accr	Avail. Stor	Accr
		0.50	0.33	1.00	0.70			0.50	0.28	1.00	0.58
0.02	0.01	0.52	0.34	1.02	0.71	0.02	0.01	0.52	0.29	1.02	0.59
0.04	0.01	0.54	0.35	1.04	0.73	0.04	0.01	0.54	0.30	1.04	0.60
0.06	0.01	0.56	0.37	1.06	0.75	0.06	0.02	0.56	0.32	1.06	0.62
0.08	0.01	0.58	0.39	1.08	0.76	0.08	0.03	0.58	0.33	1.08	0.63
0.10	0.03	0.60	0.40	1.10	0.77	0.10	0.04	0.60	0.34	1.10	0.64
0.12	0.04	0.62	0.41	1.12	0.79	0.12	0.05	0.62	0.35	1.12	0.65
0.14	0.05	0.64	0.43	1.14	0.81	0.14	0.06	0.64	0.36	1.14	0.66
0.16	0.07	0.66	0.45	1.16	0.82	0.16	0.08	0.66	0.38	1.16	0.68
0.18	0.09	0.68	0.46	1.18	0.83	0.18	0.09	0.68	0.39	1.18	0.69
0.20	0.10	0.70	0.47	1.20	0.85	0.20	0.10	0.70	0.40	1.20	0.70
0.22	0.11	0.72	0.49	1.22	0.87	0.22	0.11	0.72	0.41	1.22	0.71
0.24	0.13	0.74	0.51	1.24	0.88	0.24	0.12	0.74	0.42	1.24	0.72
0.26	0.15	0.76	0.52	1.26	0.89	0.26	0.14	0.76	0.44	1.26	0.74
0.28	0.16	0.78	0.53	1.28	0.91	0.28	0.15	0.78	0.45	1.28	0.75
0.30	0.17	0.80	0.55	1.30	0.93	0.30	0.16	0.80	0.46	1.30	0.76
0.32	0.19	0.82	0.57	1.32	0.94	0.32	0.17	0.82	0.47	1.32	0.77
0.34	0.21	0.84	0.58	1.34	0.95	0.34	0.18	0.84	0.48	1.34	0.78
0.36	0.22	0.86	0.59	1.36	0.97	0.36	0.20	0.86	0.50	1.36	0.80
0.38	0.23	0.88	0.61	1.38	0.99	0.38	0.21	0.88	0.51	1.38	0.81
0.40	0.25	0.90	0.63	1.40	1.00	0.40	0.22	0.90	0.52	1.40	0.82
0.42	0.27	0.92	0.64	1.42	1.01	0.42	0.23	0.92	0.53	1.42	0.83
0.44	0.28	0.94	0.65	1.44	1.03	0.44	0.24	0.94	0.54	1.44	0.84
0.46	0.29	0.96	0.67	1.46	1.05	0.46	0.26	0.96	0.56	1.46	0.86
0.48	0.31	0.98	0.69	1.48	1.06	0.48	0.27	0.98	0.57	1.48	0.87

$\hat{Y} = 0.75\ Z - 0.05$ $\qquad\qquad$ $\hat{Y} = 0.60\ Z - 0.02$

where $\hat{Y}$ = predicted accretion

Z = available storage at start of the storm

Note: This table is used if the amount of rainfall equals or exceeds the amount of available storage in the surface to 12-in. layer. Do not use rainfall less than the minimum-size storm of 0.10 in. The formulas at the end of the tabulation are for use when available storage exceeds the values in the table. This table can be used for all sites regardless of soil, vegetation, climate, or topography.

Tables for Determining Depletion Relations

13. Average depletion by textural groupings (sand soils, silt soils, and clay soils) are determined from the following tabulations. Winter and transition curves were converted to tables in terms of actual moisture content by textural groupings and layer for a range of field maxima, table A7. Soils are classed in three general textural groupings based on the United States Department of Agriculture classification system. Clay soils include all soils with clay in the textural class name, such as sandy clay loam, or silty clay. Silt soils include the silt loams and silts. Sand soils include the sands, sandy loams, and loams. For each site and depth the proper columns are selected for direct use in prediction of depletion. Note that depletion is used to the nearest hundredth of an inch, whereas the field maximum is used to the nearest tenth. If the predicted field maximum is beyond the table, a new column must be computed from the tabulation of average moisture loss values, tables 2 and 3 in the main text.

14. Summer depletion has to be adjusted if the moisture range from the approximated maximum to minimum differs from the total moisture loss as listed for the average summer curves in table A5. Adjustment is made by direct proportion, multiplying the average loss values by a factor to get adjusted values. The factors are selected from the table of factors for adjusting summer moisture loss values, table A6, considering the difference between the approximated maximum and minimum. The adjusted summer moisture loss values are subtracted from the approximated field maximum to give the average depletion rate tabulation for summer similar to table A7 for transition and winter.

15. These computations are demonstrated in fig. A2, utilizing information from fig. A1 and tables A5 and A6. In box 4 of fig. A1, the soil depths are listed as silt loams. On the basis of textural groups of each depth, the summer average loss values are copied from the entries for silt soils in table A5 to the average loss columns of fig. A2. The factors shown in box 4, fig. A1, were selected from table A6 considering the difference between the approximated field maximum and minimum shown in box 2, fig. A1. The average loss values are multiplied by the factor and recorded in the adjusted loss column for each depth in fig. A2. The adjusted loss

values are then subtracted from the field maximum and the answer recorded in the depletion column for each depth.

16. The transition and winter depletion tabulations can be copied into designated columns of fig. A2 so that all depletion tabulations for a site will occur on one sheet. If transition depletion exceeds the summer depletion, use the summer values starting on the day the two moisture contents converge.

Table A5

Average Accumulative Moisture Loss in Inches of Water from Field Maximum for Summer Season

	Surface to 6-in. Layer			6- to 12-in. Layer		
Days	Sand Soils	Silt Soils	Clay Soils	Sand Soils	Silt Soils	Clay Soils
0	0	0	0	0	0	0
1	0.15	0.15	0.17	0.12	0.11	0.14
2	0.30	0.29	0.33	0.24	0.21	0.27
3	0.39	0.40	0.46	0.29	0.28	0.34
4	0.48	0.51	0.59	0.34	0.35	0.40
5	0.56	0.61	0.71	0.38	0.41	0.46
6	0.62	0.69	0.79	0.42	0.47	0.52
7	0.68	0.77	0.87	0.46	0.53	0.58
8	0.73	0.85	0.95	0.50	0.59	0.63
9	0.78	0.92	1.03	0.54	0.65	0.69
10	0.83	1.00	1.10	0.57	0.71	0.74
11	0.87	1.08	1.14	0.60	0.76	0.77
12	0.91	1.16	1.18	0.63	0.81	0.80
13	0.95	1.23	1.22	0.66	0.86	0.83
14	0.98	1.30	1.26	0.69	0.91	0.86
15	1.01	1.37	1.29	0.72	0.96	0.89
16	1.04	1.43	1.31	0.74	1.01	0.91
17	1.07	1.48	1.33	0.76	1.06	0.93
18	1.09	1.53	1.34	0.78	1.11	0.95
19	1.11	1.57	1.35	0.80	1.15	0.97
20	1.13	1.61	1.36	0.82	1.19	0.98
21	1.14	1.64	1.37	0.84	1.22	0.99
22	1.15	1.66	1.38	0.86	1.25	1.00
23	1.16	1.68	1.39	0.88	1.28	1.01
24	1.17	1.70	1.40	0.90	1.31	1.02
25	1.18	1.72	1.41	0.92	1.34	1.03
26	1.19	1.74	1.42	0.93	1.37	1.04
27	1.20	1.76	1.43	0.94	1.40	1.04
28	1.21	1.78	1.43	0.95	1.42	1.05
29	1.22	1.80	1.44	0.96	1.44	1.05
30	1.23	1.82	1.44	0.97	1.46	1.06
35	1.24	1.84	1.46	0.98	1.52	1.07
40	1.25	1.86	1.47	0.99	1.57	1.08
45	1.25	1.86		0.99	1.59	
50	1.26	1.87		1.00	1.61	
55					1.62	
60					1.63	

Table A6

Factors for Adjusting Average Summer Loss to Estimated Summer Loss Values

Calculated Total Possible Moisture Loss (Max - Min) in. of Water	Factor					
	0- to 6-in. Layer			6- to 12-in. Layer		
	Sand Soils	Silt Soils	Clay Soils	Sand Soils	Silt Soils	Clay Soils
0.50	0.397	0.267	0.340	0.500	0.307	0.463
0.60	0.476	0.321	0.408	0.600	0.368	0.556
0.70	0.556	0.374	0.476	0.700	0.429	0.648
0.80	0.635	0.428	0.544	0.800	0.491	0.741
0.90	0.714	0.481	0.612	0.900	0.552	0.833
1.00	0.794	0.535	0.680	1.000	0.613	0.926
1.10	0.873	0.588	0.748	1.100	0.675	1.018
1.20	0.952	0.642	0.816	1.200	0.736	1.111
1.30	1.032	0.695	0.884	1.300	0.798	1.204
1.40	1.111	0.749	0.952	1.400	0.859	1.296
1.50	1.190	0.802	1.020	1.500	0.920	1.389
1.60	1.270	0.856	1.088	1.600	0.982	1.481
1.70	1.349	0.909	1.157	1.700	1.043	1.574
1.80	1.428	0.963	1.225	1.800	1.104	1.667
1.90	1.508	1.016	1.293	1.900	1.166	1.759
2.00	1.587	1.070	1.361	2.000	1.227	1.852
2.10	1.667	1.123	1.429	2.100	1.288	1.944
2.20	1.746	1.177	1.497	2.200	1.350	2.037
2.30	1.825	1.230	1.565	2.300	1.411	2.130
2.40	1.905	1.284	1.633	2.400	1.472	2.222
2.50	1.984	1.337	1.701	2.500	1.534	2.315
2.60	2.063	1.390	1.769	2.600	1.595	2.407
2.70	2.143	1.444	1.837	2.700	1.656	2.500
2.80	2.222	1.497	1.905	2.800	1.718	2.593
2.90	2.301	1.551	1.973	2.900	1.779	2.685
3.00	2.381	1.604	2.041	3.000	1.840	2.778

Table A7

Average Depletion Rates, in. of Water by Depth, Season, and Textural Group

Days Depletion	Field Maximum Moisture Content, in.												
0	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40
	0- to 6-in. Layer, Transition (Spring and Autumn)												
	Sand Soils												
1	1.11	1.21	1.31	1.41	1.51	1.61	1.71	1.81	1.91	2.01	2.11	2.21	2.31
2	1.03	1.13	1.23	1.33	1.43	1.53	1.63	1.73	1.83	1.93	2.03	2.13	2.23
3	0.97	1.07	1.17	1.27	1.37	1.47	1.57	1.67	1.77	1.87	1.97	2.07	2.17
4	0.92	1.02	1.12	1.22	1.32	1.42	1.52	1.62	1.72	1.82	1.92	2.02	2.12
5	0.87	0.97	1.07	1.17	1.27	1.37	1.47	1.57	1.67	1.77	1.87	1.97	2.07
6	0.83	0.93	1.03	1.13	1.23	1.33	1.43	1.53	1.63	1.73	1.83	1.93	2.03
7	0.79	0.89	0.99	1.09	1.19	1.29	1.39	1.49	1.59	1.69	1.79	1.89	1.99
8	0.75	0.85	0.95	1.05	1.15	1.25	1.35	1.45	1.55	1.65	1.75	1.85	1.95
9	0.71	0.81	0.91	1.01	1.11	1.21	1.31	1.41	1.51	1.61	1.71	1.81	1.91
10	0.68	0.78	0.88	0.98	1.08	1.18	1.28	1.38	1.48	1.58	1.68	1.78	1.88
11	0.64	0.74	0.84	0.94	1.04	1.14	1.24	1.34	1.44	1.54	1.64	1.74	1.84
12	0.61	0.71	0.81	0.91	1.01	1.11	1.21	1.31	1.41	1.51	1.61	1.71	1.81
13	0.58	0.68	0.78	0.88	0.98	1.08	1.18	1.28	1.38	1.48	1.58	1.68	1.78
14	0.55	0.65	0.75	0.85	0.95	1.05	1.15	1.25	1.35	1.45	1.55	1.65	1.75
15	0.52	0.62	0.72	0.82	0.92	1.02	1.12	1.22	1.32	1.42	1.52	1.62	1.72
16	0.49	0.59	0.69	0.79	0.89	0.99	1.09	1.19	1.29	1.39	1.49	1.59	1.69
17	0.47	0.57	0.67	0.77	0.87	0.97	1.07	1.17	1.27	1.37	1.47	1.57	1.67
18	0.45	0.55	0.65	0.75	0.85	0.95	1.05	1.15	1.25	1.35	1.45	1.55	1.65
19	0.43	0.53	0.63	0.73	0.83	0.93	1.03	1.13	1.23	1.33	1.43	1.53	1.63
20	0.41	0.51	0.61	0.71	0.81	0.91	1.01	1.11	1.21	1.31	1.41	1.51	1.61
21	0.39	0.49	0.59	0.69	0.79	0.89	0.99	1.09	1.19	1.29	1.39	1.49	1.59
22	0.37	0.47	0.57	0.67	0.77	0.87	0.97	1.07	1.17	1.27	1.37	1.47	1.57
23	0.35	0.45	0.55	0.65	0.75	0.85	0.95	1.05	1.15	1.25	1.35	1.45	1.55
24	0.33	0.43	0.53	0.63	0.73	0.83	0.93	1.03	1.13	1.23	1.33	1.43	1.53
25	0.32	0.42	0.52	0.62	0.72	0.82	0.92	1.02	1.12	1.22	1.32	1.42	1.52
26	0.31	0.41	0.51	0.61	0.71	0.81	0.91	1.01	1.11	1.21	1.31	1.41	1.51
27	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50
28	0.29	0.39	0.49	0.59	0.69	0.79	0.89	0.99	1.09	1.19	1.29	1.39	1.49
29	0.28	0.38	0.48	0.58	0.68	0.78	0.88	0.98	1.08	1.18	1.28	1.38	1.48
30	0.27	0.37	0.47	0.57	0.67	0.77	0.87	0.97	1.07	1.17	1.27	1.37	1.47
35	0.23	0.33	0.43	0.53	0.63	0.73	0.83	0.93	1.03	1.13	1.23	1.33	1.43
40	0.19	0.29	0.39	0.49	0.59	0.69	0.79	0.89	0.99	1.09	1.19	1.29	1.39
45	0.17	0.27	0.37	0.47	0.57	0.67	0.77	0.87	0.97	1.07	1.17	1.27	1.37
50	0.15	0.25	0.35	0.45	0.55	0.65	0.75	0.85	0.95	1.05	1.15	1.25	1.35

(Continued)

Table A7 (Continued)

Days Depletion 0	Field Maximum Moisture Content, in. 1.80	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00
	0- to 6-in. Layer, Transition (Spring and Autumn) (Continued)												
	Silt Soils												
1	1.71	1.81	1.91	2.01	2.11	2.21	2.31	2.41	2.51	2.61	2.71	2.81	2.91
2	1.63	1.73	1.83	1.93	2.03	2.13	2.23	2.33	2.43	2.53	2.63	2.73	2.83
3	1.58	1.68	1.78	1.88	1.98	2.08	2.18	2.28	2.38	2.48	2.58	2.68	2.78
4	1.53	1.63	1.73	1.83	1.93	2.03	2.13	2.23	2.33	2.43	2.53	2.63	2.73
5	1.48	1.58	1.68	1.78	1.88	1.98	2.08	2.18	2.28	2.38	2.48	2.58	2.68
6	1.43	1.53	1.63	1.73	1.83	1.93	2.03	2.13	2.23	2.33	2.43	2.53	2.63
7	1.39	1.49	1.59	1.69	1.79	1.89	1.99	2.09	2.19	2.29	2.39	2.49	2.59
8	1.35	1.45	1.55	1.65	1.75	1.85	1.95	2.05	2.15	2.25	2.35	2.45	2.55
9	1.32	1.42	1.52	1.62	1.72	1.82	1.92	2.02	2.12	2.22	2.32	2.42	2.52
10	1.28	1.38	1.48	1.58	1.68	1.78	1.88	1.98	2.08	2.18	2.28	2.38	2.48
11	1.25	1.35	1.45	1.55	1.65	1.75	1.85	1.95	2.05	2.15	2.25	2.35	2.45
12	1.21	1.31	1.41	1.51	1.61	1.71	1.81	1.91	2.01	2.11	2.21	2.31	2.41
13	1.18	1.28	1.38	1.48	1.58	1.68	1.78	1.88	1.98	2.08	2.18	2.28	2.38
14	1.14	1.24	1.34	1.44	1.54	1.64	1.74	1.84	1.94	2.04	2.14	2.24	2.34
15	1.11	1.21	1.31	1.41	1.51	1.61	1.71	1.81	1.91	2.01	2.11	2.21	2.31
16	1.07	1.17	1.27	1.37	1.47	1.57	1.67	1.77	1.87	1.97	2.07	2.17	2.27
17	1.04	1.14	1.24	1.34	1.44	1.54	1.64	1.74	1.84	1.94	2.04	2.14	2.24
18	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20
19	0.97	1.07	1.17	1.27	1.37	1.47	1.57	1.67	1.77	1.87	1.97	2.07	2.17
20	0.95	1.05	1.15	1.25	1.35	1.45	1.55	1.65	1.75	1.85	1.95	2.05	2.15
21	0.92	1.02	1.12	1.22	1.32	1.42	1.52	1.62	1.72	1.82	1.92	2.02	2.12
22	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10
23	0.87	0.97	1.07	1.17	1.27	1.37	1.47	1.57	1.67	1.77	1.87	1.97	2.07
24	0.85	0.95	1.05	1.15	1.25	1.35	1.45	1.55	1.65	1.75	1.85	1.95	2.05
25	0.83	0.93	1.03	1.13	1.23	1.33	1.43	1.53	1.63	1.73	1.83	1.93	2.03
26	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00
27	0.78	0.88	0.98	1.08	1.18	1.28	1.38	1.48	1.58	1.68	1.78	1.88	1.98
28	0.76	0.86	0.96	1.06	1.16	1.26	1.36	1.46	1.56	1.66	1.76	1.86	1.96
29	0.74	0.84	0.94	1.04	1.14	1.24	1.34	1.44	1.54	1.64	1.74	1.84	1.94
30	0.72	0.82	0.92	1.02	1.12	1.22	1.32	1.42	1.52	1.62	1.72	1.82	1.92
35	0.66	0.76	0.86	0.96	1.06	1.16	1.26	1.36	1.46	1.56	1.66	1.76	1.86
40	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
45	0.55	0.65	0.75	0.85	0.95	1.05	1.15	1.25	1.35	1.45	1.55	1.65	1.75
50	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70

(Continued)

Table A7 (Continued)

Days Depletion 0	Field Maximum Moisture Content, in. 2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20
	0- to 6-in. Layer, Transition (Spring and Autumn) (Continued)												
	Clay Soils												
1	1.87	1.97	2.07	2.17	2.27	2.37	2.47	2.57	2.67	2.77	2.87	2.97	3.07
2	1.74	1.84	1.94	2.04	2.14	2.24	2.34	2.44	2.54	2.64	2.74	2.84	2.94
3	1.63	1.73	1.83	1.93	2.03	2.13	2.23	2.33	2.43	2.53	2.63	2.73	2.83
4	1.52	1.62	1.72	1.82	1.92	2.02	2.12	2.22	2.32	2.42	2.52	2.62	2.72
5	1.41	1.51	1.61	1.71	1.81	1.91	2.01	2.11	2.21	2.31	2.41	2.51	2.61
6	1.33	1.43	1.53	1.63	1.73	1.83	1.93	2.03	2.13	2.23	2.33	2.43	2.53
7	1.26	1.36	1.46	1.56	1.66	1.76	1.86	1.96	2.06	2.16	2.26	2.36	2.46
8	1.19	1.29	1.39	1.49	1.59	1.69	1.79	1.89	1.99	2.09	2.19	2.29	2.39
9	1.12	1.22	1.32	1.42	1.52	1.62	1.72	1.82	1.92	2.02	2.12	2.22	2.32
10	1.05	1.15	1.25	1.35	1.45	1.55	1.65	1.75	1.85	1.95	2.05	2.15	2.25
11	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20
12	0.95	1.05	1.15	1.25	1.35	1.45	1.55	1.65	1.75	1.85	1.95	2.05	2.15
13	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10
14	0.85	0.95	1.05	1.15	1.25	1.35	1.45	1.55	1.65	1.75	1.85	1.95	2.05
15	0.81	0.91	1.01	1.11	1.21	1.31	1.41	1.51	1.61	1.71	1.81	1.91	2.01
16	0.78	0.88	0.98	1.08	1.18	1.28	1.38	1.48	1.58	1.68	1.78	1.88	1.98
17	0.76	0.86	0.96	1.06	1.16	1.26	1.36	1.46	1.56	1.66	1.76	1.86	1.96
18	0.75	0.85	0.95	1.05	1.15	1.25	1.35	1.45	1.55	1.65	1.75	1.85	1.95
19	0.74	0.84	0.94	1.04	1.14	1.24	1.34	1.44	1.54	1.64	1.74	1.84	1.94
20	0.73	0.83	0.93	1.03	1.13	1.23	1.33	1.43	1.53	1.63	1.73	1.83	1.93
21	0.72	0.82	0.92	1.02	1.12	1.22	1.32	1.42	1.52	1.62	1.72	1.82	1.92
22	0.71	0.81	0.91	1.01	1.11	1.21	1.31	1.41	1.51	1.61	1.71	1.81	1.91
23	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90
24	0.69	0.79	0.89	0.99	1.09	1.19	1.29	1.39	1.49	1.59	1.69	1.79	1.89
25	0.68	0.78	0.88	0.98	1.08	1.18	1.28	1.38	1.48	1.58	1.68	1.78	1.88
26	0.67	0.77	0.87	0.97	1.07	1.17	1.27	1.37	1.47	1.57	1.67	1.77	1.87
27	0.66	0.76	0.86	0.96	1.06	1.16	1.26	1.36	1.46	1.56	1.66	1.76	1.86
28	0.65	0.75	0.85	0.95	1.05	1.15	1.25	1.35	1.45	1.55	1.65	1.75	1.85
29	0.64	0.74	0.84	0.94	1.04	1.14	1.24	1.34	1.44	1.54	1.64	1.74	1.84
30	0.64	0.74	0.84	0.94	1.04	1.14	1.24	1.34	1.44	1.54	1.64	1.74	1.84
35	0.62	0.72	0.82	0.92	1.02	1.12	1.22	1.32	1.42	1.52	1.62	1.72	1.82
40	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
45	0.58	0.68	0.78	0.88	0.98	1.08	1.18	1.28	1.38	1.48	1.58	1.68	1.78
50	0.57	0.67	0.77	0.87	0.97	1.07	1.17	1.27	1.37	1.47	1.57	1.67	1.77

(Continued)

Table A7 (Continued)

Days Depletion 0	Field Maximum Moisture Content, in. 1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40
	0- to 6-in. Layer, Winter												
	Sand Soils												
1	1.15	1.25	1.35	1.45	1.55	1.65	1.75	1.85	1.95	2.05	2.15	2.25	2.35
2	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30
3	1.06	1.16	1.26	1.36	1.46	1.56	1.66	1.76	1.86	1.96	2.06	2.16	2.26
4	1.02	1.12	1.22	1.32	1.42	1.52	1.62	1.72	1.82	1.92	2.02	2.12	2.22
5	0.98	1.08	1.18	1.28	1.38	1.48	1.58	1.68	1.78	1.88	1.98	2.08	2.18
6	0.95	1.05	1.15	1.25	1.35	1.45	1.55	1.65	1.75	1.85	1.95	2.05	2.15
7	0.92	1.02	1.12	1.22	1.32	1.42	1.52	1.62	1.72	1.82	1.92	2.02	2.12
8	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10
9	0.88	0.98	1.08	1.18	1.28	1.38	1.48	1.58	1.68	1.78	1.88	1.98	2.08
10	0.86	0.96	1.06	1.16	1.26	1.36	1.46	1.56	1.66	1.76	1.86	1.96	2.06
11	0.84	0.94	1.04	1.14	1.24	1.34	1.44	1.54	1.64	1.74	1.84	1.94	2.04
12	0.82	0.92	1.02	1.12	1.22	1.32	1.42	1.52	1.62	1.72	1.82	1.92	2.02
13	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00
14	0.79	0.89	0.99	1.09	1.19	1.29	1.39	1.49	1.59	1.69	1.79	1.89	1.99
15	0.77	0.87	0.97	1.07	1.17	1.27	1.37	1.47	1.57	1.67	1.77	1.87	1.97
16	0.76	0.86	0.96	1.06	1.16	1.26	1.36	1.46	1.56	1.66	1.76	1.86	1.96
17	0.75	0.85	0.95	1.05	1.15	1.25	1.35	1.45	1.55	1.65	1.75	1.85	1.95
18	0.74	0.84	0.94	1.04	1.14	1.24	1.34	1.44	1.54	1.64	1.74	1.84	1.94
19	0.73	0.83	0.93	1.03	1.13	1.23	1.33	1.43	1.53	1.63	1.73	1.83	1.93
20	0.72	0.82	0.92	1.02	1.12	1.22	1.32	1.42	1.52	1.62	1.72	1.82	1.92
21	0.72	0.82	0.92	1.02	1.12	1.22	1.32	1.42	1.52	1.62	1.72	1.82	1.92
22	0.71	0.81	0.91	1.01	1.11	1.21	1.31	1.41	1.51	1.61	1.71	1.81	1.91
23	0.71	0.81	0.91	1.01	1.11	1.21	1.31	1.41	1.51	1.61	1.71	1.81	1.91
24	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90
25	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90
26	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90
27	0.69	0.79	0.89	0.99	1.09	1.19	1.29	1.39	1.49	1.59	1.69	1.79	1.89
28	0.69	0.79	0.89	0.99	1.09	1.19	1.29	1.39	1.49	1.59	1.69	1.79	1.89
29	0.69	0.79	0.89	0.99	1.09	1.19	1.29	1.39	1.49	1.59	1.69	1.79	1.89
30	0.68	0.78	0.88	0.98	1.08	1.18	1.28	1.38	1.48	1.58	1.68	1.78	1.88
35	0.67	0.77	0.87	0.97	1.07	1.17	1.27	1.37	1.47	1.57	1.67	1.77	1.87
40	0.66	0.76	0.86	0.96	1.06	1.16	1.26	1.36	1.46	1.56	1.66	1.76	1.86

(Continued)

Table A7 (Continued)

Days Depletion 0	Field Maximum Moisture Content, in. 1.80	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00
	0- to 6-in. Layer, Winter (Continued)												
	Silt Soils												
1	1.75	1.85	1.95	2.05	2.15	2.25	2.35	2.45	2.55	2.65	2.75	2.85	2.95
2	1.71	1.81	1.91	2.01	2.11	2.21	2.31	2.41	2.51	2.61	2.71	2.81	2.91
3	1.68	1.78	1.88	1.98	2.08	2.18	2.28	2.38	2.48	2.58	2.68	2.78	2.88
4	1.65	1.75	1.85	1.95	2.05	2.15	2.25	2.35	2.45	2.55	2.65	2.75	2.85
5	1.62	1.72	1.82	1.92	2.02	2.12	2.22	2.32	2.42	2.52	2.62	2.72	2.82
6	1.59	1.69	1.79	1.89	1.99	2.09	2.19	2.29	2.39	2.49	2.59	2.69	2.79
7	1.56	1.66	1.76	1.86	1.96	2.06	2.16	2.26	2.36	2.46	2.56	2.66	2.76
8	1.53	1.63	1.73	1.83	1.93	2.03	2.13	2.23	2.33	2.43	2.53	2.63	2.73
9	1.51	1.61	1.71	1.81	1.91	2.01	2.11	2.21	2.31	2.41	2.51	2.61	2.71
10	1.49	1.59	1.69	1.79	1.89	1.99	2.09	2.19	2.29	2.39	2.49	2.59	2.69
11	1.47	1.57	1.67	1.77	1.87	1.97	2.07	2.17	2.27	2.37	2.47	2.57	2.67
12	1.46	1.56	1.66	1.76	1.86	1.96	2.06	2.16	2.26	2.36	2.46	2.56	2.66
13	1.45	1.55	1.65	1.75	1.85	1.95	2.05	2.15	2.25	2.35	2.45	2.55	2.65
14	1.44	1.54	1.64	1.74	1.84	1.94	2.04	2.14	2.24	2.34	2.44	2.54	2.64
15	1.43	1.53	1.63	1.73	1.83	1.93	2.03	2.13	2.23	2.33	2.43	2.53	2.63
16	1.42	1.52	1.62	1.72	1.82	1.92	2.02	2.12	2.22	2.32	2.42	2.52	2.62
17	1.41	1.51	1.61	1.71	1.81	1.91	2.01	2.11	2.21	2.31	2.41	2.51	2.61
18	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60
19	1.39	1.49	1.59	1.69	1.79	1.89	1.99	2.09	2.19	2.29	2.39	2.49	2.59
20													
21													
22													
23													
24	1.39	1.49	1.59	1.69	1.79	1.89	1.99	2.09	2.19	2.29	2.39	2.49	2.59
25	1.38	1.48	1.58	1.68	1.78	1.88	1.98	2.08	2.18	2.28	2.38	2.48	2.58
26													
27													
28													
29													
30	1.38	1.48	1.58	1.68	1.78	1.88	1.98	2.08	2.18	2.28	2.38	2.48	2.58

(Continued)

Table A7 (Continued)

Days Depletion 0	Field Maximum Moisture Content, in. 2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20
	0- to 6-in. Layer, Winter (Continued)												
	Clay Soils												
1	1.92	2.02	2.12	2.22	2.32	2.42	2.52	2.62	2.72	2.82	2.92	3.02	3.12
2	1.84	1.94	2.04	2.14	2.24	2.34	2.44	2.54	2.64	2.74	2.84	2.94	3.04
3	1.78	1.88	1.98	2.08	2.18	2.28	2.38	2.48	2.58	2.68	2.78	2.88	2.98
4	1.72	1.82	1.92	2.02	2.12	2.22	2.32	2.42	2.52	2.62	2.72	2.82	2.92
5	1.67	1.77	1.87	1.97	2.07	2.17	2.27	2.37	2.47	2.57	2.67	2.77	2.87
6	1.63	1.73	1.83	1.93	2.03	2.13	2.23	2.33	2.43	2.53	2.63	2.73	2.83
7	1.59	1.69	1.79	1.89	1.99	2.09	2.19	2.29	2.39	2.49	2.59	2.69	2.79
8	1.55	1.65	1.75	1.85	1.95	2.05	2.15	2.25	2.35	2.45	2.55	2.65	2.75
9	1.51	1.61	1.71	1.81	1.91	2.01	2.11	2.21	2.31	2.41	2.51	2.61	2.71
10	1.48	1.58	1.68	1.78	1.88	1.98	2.08	2.18	2.28	2.38	2.48	2.58	2.68
11	1.45	1.55	1.65	1.75	1.85	1.95	2.05	2.15	2.25	2.35	2.45	2.55	2.65
12	1.42	1.52	1.62	1.72	1.82	1.92	2.02	2.12	2.22	2.32	2.42	2.52	2.62
13	1.39	1.49	1.59	1.69	1.79	1.89	1.99	2.09	2.19	2.29	2.39	2.49	2.59
14	1.36	1.46	1.56	1.66	1.76	1.86	1.96	2.06	2.16	2.26	2.36	2.46	2.56
15	1.34	1.44	1.54	1.64	1.74	1.84	1.94	2.04	2.14	2.24	2.34	2.44	2.54
16	1.32	1.42	1.52	1.62	1.72	1.82	1.92	2.02	2.12	2.22	2.32	2.42	2.52
17	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40	2.50
18	1.28	1.38	1.48	1.58	1.68	1.78	1.88	1.98	2.08	2.18	2.28	2.38	2.48
19	1.26	1.36	1.46	1.56	1.66	1.76	1.86	1.96	2.06	2.16	2.26	2.36	2.46
20	1.25	1.35	1.45	1.55	1.65	1.75	1.85	1.95	2.05	2.15	2.25	2.35	2.45
21	1.23	1.33	1.43	1.53	1.63	1.73	1.83	1.93	2.03	2.13	2.23	2.33	2.43
22	1.22	1.32	1.42	1.52	1.62	1.72	1.82	1.92	2.02	2.12	2.22	2.32	2.42
23	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40
24	1.19	1.29	1.39	1.49	1.59	1.69	1.79	1.89	1.99	2.09	2.19	2.29	2.39
25	1.18	1.28	1.38	1.48	1.58	1.68	1.78	1.88	1.98	2.08	2.18	2.28	2.38
26	1.17	1.27	1.37	1.47	1.57	1.67	1.77	1.87	1.97	2.07	2.17	2.27	2.37
27	1.16	1.26	1.36	1.46	1.56	1.66	1.76	1.86	1.96	2.06	2.16	2.26	2.36
28	1.15	1.25	1.35	1.45	1.55	1.65	1.75	1.85	1.95	2.05	2.15	2.25	2.35
29	1.14	1.24	1.34	1.44	1.54	1.64	1.74	1.84	1.94	2.04	2.14	2.24	2.34
30	1.13	1.23	1.33	1.43	1.53	1.63	1.73	1.83	1.93	2.03	2.13	2.23	2.33
35	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30
40	1.08	1.18	1.28	1.38	1.48	1.58	1.68	1.78	1.88	1.98	2.08	2.18	2.28

(Continued)

Table A7 (Continued)

Days Depletion 0	Field Maximum Moisture Content, in. 1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40
6- to 12-in. Layer, Transition (Spring and Autumn)													
Sand Soils													
1	1.13	1.23	1.33	1.43	1.53	1.63	1.73	1.83	1.93	2.03	2.13	2.23	2.33
2	1.06	1.16	1.26	1.36	1.46	1.56	1.66	1.76	1.86	1.96	2.06	2.16	2.26
3	1.02	1.12	1.22	1.32	1.42	1.52	1.62	1.72	1.82	1.92	2.02	2.12	2.22
4	0.98	1.08	1.18	1.28	1.38	1.48	1.58	1.68	1.78	1.88	1.98	2.08	2.18
5	0.95	1.05	1.15	1.25	1.35	1.45	1.55	1.65	1.75	1.85	1.95	2.05	2.15
6	0.92	1.02	1.12	1.22	1.32	1.42	1.52	1.62	1.72	1.82	1.92	2.02	2.12
7	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10
8	0.88	0.98	1.08	1.18	1.28	1.38	1.48	1.58	1.68	1.78	1.88	1.98	2.08
9	0.86	0.96	1.06	1.16	1.26	1.36	1.46	1.56	1.66	1.76	1.86	1.96	2.06
10	0.84	0.94	1.04	1.14	1.24	1.34	1.44	1.54	1.64	1.74	1.84	1.94	2.04
11	0.82	0.92	1.02	1.12	1.22	1.32	1.42	1.52	1.62	1.72	1.82	1.92	2.02
12	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00
13	0.78	0.88	0.98	1.08	1.18	1.28	1.38	1.48	1.58	1.68	1.78	1.88	1.98
14	0.76	0.86	0.96	1.06	1.16	1.26	1.36	1.46	1.56	1.66	1.76	1.86	1.96
15	0.75	0.85	0.95	1.05	1.15	1.25	1.35	1.45	1.55	1.65	1.75	1.85	1.95
16	0.73	0.83	0.93	1.03	1.13	1.23	1.33	1.43	1.53	1.63	1.73	1.83	1.93
17	0.71	0.81	0.91	1.01	1.11	1.21	1.31	1.41	1.51	1.61	1.71	1.81	1.91
18	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90
19	0.69	0.79	0.89	0.99	1.09	1.19	1.29	1.39	1.49	1.59	1.69	1.79	1.89
20	0.68	0.78	0.88	0.98	1.08	1.18	1.28	1.38	1.48	1.58	1.68	1.78	1.88
21	0.67	0.77	0.87	0.97	1.07	1.17	1.27	1.37	1.47	1.57	1.67	1.77	1.87
22	0.66	0.76	0.86	0.96	1.06	1.16	1.26	1.36	1.46	1.56	1.66	1.76	1.86
23	0.65	0.75	0.85	0.95	1.05	1.15	1.25	1.35	1.45	1.55	1.65	1.75	1.85
24	0.64	0.74	0.84	0.94	1.04	1.14	1.24	1.34	1.44	1.54	1.64	1.74	1.84
25	0.63	0.73	0.83	0.93	1.03	1.13	1.23	1.33	1.43	1.53	1.63	1.73	1.83
26	0.62	0.72	0.82	0.92	1.02	1.12	1.22	1.32	1.42	1.52	1.62	1.72	1.82
27	0.61	0.71	0.81	0.91	1.01	1.11	1.21	1.31	1.41	1.51	1.61	1.71	1.81
28	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
29	0.59	0.69	0.79	0.89	0.99	1.09	1.19	1.29	1.39	1.49	1.59	1.69	1.79
30	0.58	0.68	0.78	0.88	0.98	1.08	1.18	1.28	1.38	1.48	1.58	1.68	1.78
35	0.55	0.65	0.75	0.85	0.95	1.05	1.15	1.25	1.35	1.45	1.55	1.65	1.75
40	0.52	0.62	0.72	0.82	0.92	1.02	1.12	1.22	1.32	1.42	1.52	1.62	1.72
45	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70
50	0.48	0.58	0.68	0.78	0.88	0.98	1.08	1.18	1.28	1.38	1.48	1.58	1.68

(Continued)

Table A7 (Continued)

Days Depletion 0	Field Maximum Moisture Content, in. 1.80	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00
6- to 12-in. Layer, Transition (Spring and Autumn) (Continued)													
Silt Soils													
1	1.75	1.85	1.95	2.05	2.15	2.25	2.35	2.45	2.55	2.65	2.75	2.85	2.95
2	1.71	1.81	1.91	2.01	2.11	2.21	2.31	2.41	2.51	2.61	2.71	2.81	2.91
3	1.67	1.77	1.87	1.97	2.07	2.17	2.27	2.37	2.47	2.57	2.67	2.77	2.87
4	1.64	1.74	1.84	1.94	2.04	2.14	2.24	2.34	2.44	2.54	2.64	2.74	2.84
5	1.61	1.71	1.81	1.91	2.01	2.11	2.21	2.31	2.41	2.51	2.61	2.71	2.81
6	1.58	1.68	1.78	1.88	1.98	2.08	2.18	2.28	2.38	2.48	2.58	2.68	2.78
7	1.55	1.65	1.75	1.85	1.95	2.05	2.15	2.25	2.35	2.45	2.55	2.65	2.75
8	1.52	1.62	1.72	1.82	1.92	2.02	2.12	2.22	2.32	2.42	2.52	2.62	2.72
9	1.49	1.59	1.69	1.79	1.89	1.99	2.09	2.19	2.29	2.39	2.49	2.59	2.69
10	1.46	1.56	1.66	1.76	1.86	1.96	2.06	2.16	2.26	2.36	2.46	2.56	2.66
11	1.43	1.53	1.63	1.73	1.83	1.93	2.03	2.13	2.23	2.33	2.43	2.53	2.63
12	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60
13	1.37	1.47	1.57	1.67	1.77	1.87	1.97	2.07	2.17	2.27	2.37	2.47	2.57
14	1.34	1.44	1.54	1.64	1.74	1.84	1.94	2.04	2.14	2.24	2.34	2.44	2.54
15	1.32	1.42	1.52	1.62	1.72	1.82	1.92	2.02	2.12	2.22	2.32	2.42	2.52
16	1.29	1.39	1.49	1.59	1.69	1.79	1.89	1.99	2.09	2.19	2.29	2.39	2.49
17	1.26	1.36	1.46	1.56	1.66	1.76	1.86	1.96	2.06	2.16	2.26	2.36	2.46
18	1.24	1.34	1.44	1.54	1.64	1.74	1.84	1.94	2.04	2.14	2.24	2.34	2.44
19	1.21	1.31	1.41	1.51	1.61	1.71	1.81	1.91	2.01	2.11	2.21	2.31	2.41
20	1.19	1.29	1.39	1.49	1.59	1.69	1.79	1.89	1.99	2.09	2.19	2.29	2.39
21	1.16	1.26	1.36	1.46	1.56	1.66	1.76	1.86	1.96	2.06	2.16	2.26	2.36
22	1.14	1.24	1.34	1.44	1.54	1.64	1.74	1.84	1.94	2.04	2.14	2.24	2.34
23	1.11	1.21	1.31	1.41	1.51	1.61	1.71	1.81	1.91	2.01	2.11	2.21	2.31
24	1.09	1.19	1.29	1.39	1.49	1.59	1.69	1.79	1.89	1.99	2.09	2.19	2.29
25	1.06	1.16	1.26	1.36	1.46	1.56	1.66	1.76	1.86	1.96	2.06	2.16	2.26
26	1.04	1.14	1.24	1.34	1.44	1.54	1.64	1.74	1.84	1.94	2.04	2.14	2.24
27	1.01	1.11	1.21	1.31	1.41	1.51	1.61	1.71	1.81	1.91	2.01	2.11	2.21
28	0.99	1.09	1.19	1.29	1.39	1.49	1.59	1.69	1.79	1.89	1.99	2.09	2.19
29	0.97	1.07	1.17	1.27	1.37	1.47	1.57	1.67	1.77	1.87	1.97	2.07	2.17
30	0.95	1.05	1.15	1.25	1.35	1.45	1.55	1.65	1.75	1.85	1.95	2.05	2.15
35	0.85	0.95	1.05	1.15	1.25	1.35	1.45	1.55	1.65	1.75	1.85	1.95	2.05
40	0.77	0.87	0.97	1.07	1.17	1.27	1.37	1.47	1.57	1.67	1.77	1.87	1.97
45	0.73	0.83	0.93	1.03	1.13	1.23	1.33	1.43	1.53	1.63	1.73	1.83	1.93
50	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90

(Continued)

Table A7 (Continued)

Days Depletion	Field Maximum Moisture Content, in.												
0	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20
	6- to 12-in. Layer, Transition (Spring and Autumn) (Continued)												
	Clay Soils												
1	1.92	2.02	2.12	2.22	2.32	2.42	2.52	2.62	2.72	2.82	2.92	3.02	3.12
2	1.85	1.95	2.05	2.15	2.25	2.35	2.45	2.55	2.65	2.75	2.85	2.95	3.05
3	1.81	1.91	2.01	2.11	2.21	2.31	2.41	2.51	2.61	2.71	2.81	2.91	3.01
4	1.77	1.87	1.97	2.07	2.17	2.27	2.37	2.47	2.57	2.67	2.77	2.87	2.97
5	1.73	1.83	1.93	2.03	2.13	2.23	2.33	2.43	2.53	2.63	2.73	2.83	2.93
6	1.69	1.79	1.89	1.99	2.09	2.19	2.29	2.39	2.49	2.59	2.69	2.79	2.89
7	1.65	1.75	1.85	1.95	2.05	2.15	2.25	2.35	2.45	2.55	2.65	2.75	2.85
8	1.61	1.71	1.81	1.91	2.01	2.11	2.21	2.31	2.41	2.51	2.61	2.71	2.81
9	1.57	1.67	1.77	1.87	1.97	2.07	2.17	2.27	2.37	2.47	2.57	2.67	2.77
10	1.53	1.63	1.73	1.83	1.93	2.03	2.13	2.23	2.33	2.43	2.53	2.63	2.73
11	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70
12	1.47	1.57	1.67	1.77	1.87	1.97	2.07	2.17	2.27	2.37	2.47	2.57	2.67
13	1.44	1.54	1.64	1.74	1.84	1.94	2.04	2.14	2.24	2.34	2.44	2.54	2.64
14	1.41	1.51	1.61	1.71	1.81	1.91	2.01	2.11	2.21	2.31	2.41	2.51	2.61
15	1.38	1.48	1.58	1.68	1.78	1.88	1.98	2.08	2.18	2.28	2.38	2.48	2.58
16	1.36	1.46	1.56	1.66	1.76	1.86	1.96	2.06	2.16	2.26	2.36	2.46	2.56
17	1.34	1.44	1.54	1.64	1.74	1.84	1.94	2.04	2.14	2.24	2.34	2.44	2.54
18	1.32	1.42	1.52	1.62	1.72	1.82	1.92	2.02	2.12	2.22	2.32	2.42	2.52
19	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40	2.50
20	1.28	1.38	1.48	1.58	1.68	1.78	1.88	1.98	2.08	2.18	2.28	2.38	2.48
21	1.26	1.36	1.46	1.56	1.66	1.76	1.86	1.96	2.06	2.16	2.26	2.36	2.46
22	1.25	1.35	1.45	1.55	1.65	1.75	1.85	1.95	2.05	2.15	2.25	2.35	2.45
23	1.24	1.34	1.44	1.54	1.64	1.74	1.84	1.94	2.04	2.14	2.24	2.34	2.44
24	1.23	1.33	1.43	1.53	1.63	1.73	1.83	1.93	2.03	2.13	2.23	2.33	2.43
25	1.22	1.32	1.42	1.52	1.62	1.72	1.82	1.92	2.02	2.12	2.22	2.32	2.42
26	1.21	1.31	1.41	1.51	1.61	1.71	1.81	1.91	2.01	2.11	2.21	2.31	2.41
27	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40
28	1.19	1.29	1.39	1.49	1.59	1.69	1.79	1.89	1.99	2.09	2.19	2.29	2.39
29	1.18	1.28	1.38	1.48	1.58	1.68	1.78	1.88	1.98	2.08	2.18	2.28	2.38
30	1.17	1.27	1.37	1.47	1.57	1.67	1.77	1.87	1.97	2.07	2.17	2.27	2.37
35	1.14	1.24	1.34	1.44	1.54	1.64	1.74	1.84	1.94	2.04	2.14	2.24	2.34
40	1.11	1.21	1.31	1.41	1.51	1.61	1.71	1.81	1.91	2.01	2.11	2.21	2.31
45	1.09	1.19	1.29	1.39	1.49	1.59	1.69	1.79	1.89	1.99	2.09	2.19	2.29
50	1.07	1.17	1.27	1.37	1.47	1.57	1.67	1.77	1.87	1.97	2.07	2.17	2.27

(Continued)

Table A7 (Continued)

Days Depletion 0	Field Maximum Moisture Content, in. 1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40
					6- to 12-in. Layer, Winter								
					Sand Soils								
1	1.14	1.24	1.34	1.44	1.54	1.64	1.74	1.84	1.94	2.04	2.14	2.24	2.34
2	1.09	1.19	1.29	1.39	1.49	1.59	1.69	1.79	1.89	1.99	2.09	2.19	2.29
3	1.06	1.16	1.26	1.36	1.46	1.56	1.66	1.76	1.86	1.96	2.06	2.16	2.26
4	1.03	1.13	1.23	1.33	1.43	1.53	1.63	1.73	1.83	1.93	2.03	2.13	2.23
5	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20
6	0.98	1.08	1.18	1.28	1.38	1.48	1.58	1.68	1.78	1.88	1.98	2.08	2.18
7	0.96	1.06	1.16	1.26	1.36	1.46	1.56	1.66	1.76	1.86	1.96	2.06	2.16
8	0.95	1.05	1.15	1.25	1.35	1.45	1.55	1.65	1.75	1.85	1.95	2.05	2.15
9	0.94	1.04	1.14	1.24	1.34	1.44	1.54	1.64	1.74	1.84	1.94	2.04	2.14
10	0.93	1.03	1.13	1.23	1.33	1.43	1.53	1.63	1.73	1.83	1.93	2.03	2.13
11	0.92	1.02	1.12	1.22	1.32	1.42	1.52	1.62	1.72	1.82	1.92	2.02	2.12
12	0.91	1.01	1.11	1.21	1.31	1.41	1.51	1.61	1.71	1.81	1.91	2.01	2.11
13	0.91	1.01	1.11	1.21	1.31	1.41	1.51	1.61	1.71	1.81	1.91	2.01	2.11
14	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10
15	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10
16	0.89	0.99	1.09	1.19	1.29	1.39	1.49	1.59	1.69	1.79	1.89	1.99	2.09
17	0.89	0.99	1.09	1.19	1.29	1.39	1.49	1.59	1.69	1.79	1.89	1.99	2.09
18	0.88	0.98	1.08	1.18	1.28	1.38	1.48	1.58	1.68	1.78	1.88	1.98	2.08
19	0.88	0.98	1.08	1.18	1.28	1.38	1.48	1.58	1.68	1.78	1.88	1.98	2.08
20	0.87	0.97	1.07	1.17	1.27	1.37	1.47	1.57	1.67	1.77	1.87	1.97	2.07
21													
22													
23													
24	0.87	0.97	1.07	1.17	1.27	1.37	1.47	1.57	1.67	1.77	1.87	1.97	2.07
25	0.86	0.96	1.06	1.16	1.26	1.36	1.46	1.56	1.66	1.76	1.86	1.96	2.06
26													
27													
28													
29													
30	0.86	0.96	1.06	1.16	1.26	1.36	1.46	1.56	1.66	1.76	1.86	1.96	2.06
35	0.85	0.95	1.05	1.15	1.25	1.35	1.45	1.55	1.65	1.75	1.85	1.95	2.05
40	0.85	0.95	1.05	1.15	1.25	1.35	1.45	1.55	1.65	1.75	1.85	1.95	2.05

(Continued)

Table A7 (Continued)

Days Depletion 0	Field Maximum Moisture Content, in. 1.80	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00
	6- to 12-in. Layer, Winter (Continued)												
	Silt Soils												
1	1.77	1.87	1.97	2.07	2.17	2.27	2.37	2.47	2.57	2.67	2.77	2.87	2.97
2	1.75	1.85	1.95	2.05	2.15	2.25	2.35	2.45	2.55	2.65	2.75	2.85	2.95
3	1.73	1.83	1.93	2.03	2.13	2.23	2.33	2.43	2.53	2.63	2.73	2.83	2.93
4	1.71	1.81	1.91	2.01	2.11	2.21	2.31	2.41	2.51	2.61	2.71	2.81	2.91
5	1.69	1.79	1.89	1.99	2.09	2.19	2.29	2.39	2.49	2.59	2.69	2.79	2.89
6	1.67	1.77	1.87	1.97	2.07	2.17	2.27	2.37	2.47	2.57	2.67	2.77	2.87
7	1.66	1.76	1.86	1.96	2.06	2.16	2.26	2.36	2.46	2.56	2.66	2.76	2.86
8	1.65	1.75	1.85	1.95	2.05	2.15	2.25	2.35	2.45	2.55	2.65	2.75	2.85
9	1.64	1.74	1.84	1.94	2.04	2.14	2.24	2.34	2.44	2.54	2.64	2.74	2.84
10	1.63	1.73	1.83	1.93	2.03	2.13	2.23	2.33	2.43	2.53	2.63	2.73	2.83
11	1.62	1.72	1.82	1.92	2.02	2.12	2.22	2.32	2.42	2.52	2.62	2.72	2.82
12	1.61	1.71	1.81	1.91	2.01	2.11	2.21	2.31	2.41	2.51	2.61	2.71	2.81
13	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80
14	1.59	1.69	1.79	1.89	1.99	2.09	2.19	2.29	2.39	2.49	2.59	2.69	2.79
15	1.58	1.68	1.78	1.88	1.98	2.08	2.18	2.28	2.38	2.48	2.58	2.68	2.78
16	1.57	1.67	1.77	1.87	1.97	2.07	2.17	2.27	2.37	2.47	2.57	2.67	2.77
17	1.56	1.66	1.76	1.86	1.96	2.06	2.16	2.26	2.36	2.46	2.56	2.66	2.76
18	1.56	1.66	1.76	1.86	1.96	2.06	2.16	2.26	2.36	2.46	2.56	2.66	2.76
19	1.55	1.65	1.75	1.85	1.95	2.05	2.15	2.25	2.35	2.45	2.55	2.65	2.75
20	1.55	1.65	1.75	1.85	1.95	2.05	2.15	2.25	2.35	2.45	2.55	2.65	2.75
21	1.54	1.64	1.74	1.84	1.94	2.04	2.14	2.24	2.34	2.44	2.54	2.64	2.74
22	1.54	1.64	1.74	1.84	1.94	2.04	2.14	2.24	2.34	2.44	2.54	2.64	2.74
23	1.53	1.63	1.73	1.83	1.93	2.03	2.13	2.23	2.33	2.43	2.53	2.63	2.73
24	1.53	1.63	1.73	1.83	1.93	2.03	2.13	2.23	2.33	2.43	2.53	2.63	2.73
25	1.52	1.62	1.72	1.82	1.92	2.02	2.12	2.22	2.32	2.42	2.52	2.62	2.72
26	1.52	1.62	1.72	1.82	1.92	2.02	2.12	2.22	2.32	2.42	2.52	2.62	2.72
27	1.52	1.62	1.72	1.82	1.92	2.02	2.12	2.22	2.32	2.42	2.52	2.62	2.72
28	1.51	1.61	1.71	1.81	1.91	2.01	2.11	2.21	2.31	2.41	2.51	2.61	2.71
29													
30	1.51	1.61	1.71	1.81	1.91	2.01	2.11	2.21	2.31	2.41	2.51	2.61	2.71
35	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70
40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70

(Continued)

Table A7 (Concluded)

Days Depletion 0	Field Maximum Moisture Content, in. 2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10	3.20
6- to 12-in. Layer, Winter (Continued)													
Clay Soils													
1	1.95	2.05	2.15	2.25	2.35	2.45	2.55	2.65	2.75	2.85	2.95	3.05	3.15
2	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.10
3	1.87	1.97	2.07	2.17	2.27	2.37	2.47	2.57	2.67	2.77	2.87	2.97	3.07
4	1.84	1.94	2.04	2.14	2.24	2.34	2.44	2.54	2.64	2.74	2.84	2.94	3.04
5	1.81	1.91	2.01	2.11	2.21	2.31	2.41	2.51	2.61	2.71	2.81	2.91	3.01
6	1.79	1.89	1.99	2.09	2.19	2.29	2.39	2.49	2.59	2.69	2.79	2.89	2.99
7	1.77	1.87	1.97	2.07	2.17	2.27	2.37	2.47	2.57	2.67	2.77	2.87	2.97
8	1.75	1.85	1.95	2.05	2.15	2.25	2.35	2.45	2.55	2.65	2.75	2.85	2.95
9	1.73	1.83	1.93	2.03	2.13	2.23	2.33	2.43	2.53	2.63	2.73	2.83	2.93
10	1.71	1.81	1.91	2.01	2.11	2.21	2.31	2.41	2.51	2.61	2.71	2.81	2.91
11	1.69	1.79	1.89	1.99	2.09	2.19	2.29	2.39	2.49	2.59	2.69	2.79	2.89
12	1.67	1.77	1.87	1.97	2.07	2.17	2.27	2.37	2.47	2.57	2.67	2.77	2.87
13	1.66	1.76	1.86	1.96	2.06	2.16	2.26	2.36	2.46	2.56	2.66	2.76	2.86
14	1.65	1.75	1.85	1.95	2.05	2.15	2.25	2.35	2.45	2.55	2.65	2.75	2.85
15	1.64	1.74	1.84	1.94	2.04	2.14	2.24	2.34	2.44	2.54	2.64	2.74	2.84
16	1.63	1.73	1.83	1.93	2.03	2.13	2.23	2.33	2.43	2.53	2.63	2.73	2.83
17	1.62	1.72	1.82	1.92	2.02	2.12	2.22	2.32	2.42	2.52	2.62	2.72	2.82
18	1.61	1.71	1.81	1.91	2.01	2.11	2.21	2.31	2.41	2.51	2.61	2.71	2.81
19	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80
20	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80
21	1.59	1.69	1.79	1.89	1.99	2.09	2.19	2.29	2.39	2.49	2.59	2.69	2.79
22	1.59	1.69	1.79	1.89	1.99	2.09	2.19	2.29	2.39	2.49	2.59	2.69	2.79
23	1.58	1.68	1.78	1.88	1.98	2.08	2.18	2.28	2.38	2.48	2.58	2.68	2.78
24	1.58	1.68	1.78	1.88	1.98	2.08	2.18	2.28	2.38	2.48	2.58	2.68	2.78
25	1.57	1.67	1.77	1.87	1.97	2.07	2.17	2.27	2.37	2.47	2.57	2.67	2.77
26	1.57	1.67	1.77	1.87	1.97	2.07	2.17	2.27	2.37	2.47	2.57	2.67	2.77
27	1.56	1.66	1.76	1.86	1.96	2.06	2.16	2.26	2.36	2.46	2.56	2.66	2.76
28	1.56	1.66	1.76	1.86	1.96	2.06	2.16	2.26	2.36	2.46	2.56	2.66	2.76
29	1.55	1.65	1.75	1.85	1.95	2.05	2.15	2.25	2.35	2.45	2.55	2.65	2.75
30	1.55	1.65	1.75	1.85	1.95	2.05	2.15	2.25	2.35	2.45	2.55	2.65	2.75
35	1.54	1.64	1.74	1.84	1.94	2.04	2.14	2.24	2.34	2.44	2.54	2.64	2.74
40	1.54	1.64	1.74	1.84	1.94	2.04	2.14	2.24	2.34	2.44	2.54	2.64	2.74

APPENDIX B: DESCRIPTIONS AND SOIL PROPERTIES OF STRENGTH-MOISTURE SURVEY SITES

Objectives of Survey and Scope of Appendix B

1. From June 1954 to Jul[illegible] a soil-strength and soil-moisture prediction survey was conducted in four regions designated by the U. S. Forest Service as the southern, [illegible]eastern, lake states, and intermountain regions. The objectives of this survey were to check the accuracy of the soil-moisture prediction method using the tentative average relations on the principal soils of these regions, to determine cone index and remolding index values of these soils, and to test means of predicting soil strength. The check on the accuracy of the soil-moisture prediction method is discussed in the main report. The cone and remolding index (strength) values are listed in this appendix. The test of soil-strength prediction awaits the completion of a workable strength-prediction system. This appendix also describes the survey regions, the procedures used on the surveys, and lists site characteristics and physical properties of the soils.

Survey Regions

Southern

2. The southern region includes the Mississippi Alluvial Plain, and the eastern section of the Gulf Coastal Plain in the states of Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, and Tennessee.* Here the summers are hot and humid and the winters cool with considerable frost, but the ground seldom freezes.

3. The soils fall into four broad groups: Mississippi River alluvium, loess, Coastal Plain sands and clays, and Rendzina clays.

Northeastern

4. The northeastern region embraces the Allegheny and Catskill sections of the Appalachian Plateau province in Pennsylvania and New York, and

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* Basil D. Doss and W. M. Broadfoot, Properties of 91 Southern Soil Series, Occasional Paper 147 (New Orleans, La., Southern Forest Experiment Station, 1956).

the southern portion of New England. Parts of six states are included: Connecticut, Massachusetts, New Hampshire, New York, Pennsylvania, and Vermont.* Average January and July temperatures are very much cooler than those in the southern region. Frost periods are lengthy and frost sometimes penetrates deep into the ground. The region receives considerable precipitation, but less than the southern.

5. Soils are derived largely from glacial till and outwash of sandstone and shale. They are podzolic in nature and quite variable in drainage and texture. Noncultivated areas tend to be stony.

Lake states

6. The lake states region includes the Superior-Upland section of the Laurentian Upland province in Minnesota and northern Wisconsin, the Driftless and Eastern Lake section of the Central Lowland province in southern Wisconsin, and the Till Plains of Iowa and northern Illinois. Portions of Illinois, Iowa, Minnesota, and Wisconsin** are included. This is the coldest of the four regions, and has the greatest snowfall and deepest frost penetration. The annual precipitation of 20 to 30 in. is somewhat less than that received in the northeastern and southern regions.

7. Soils in the southern part of the region average from medium to fine in texture, tend to have high organic content, and are variable in drainage characteristics. In the northern portion, the glacial drift soils are coarser textured and frequently have high water tables.

Intermountain

8. The intermountain region includes a large portion of the Great Basin between the Sierra Nevadas and the high plateaus traversing north-south through Utah. It also extends south as far as the southern border of Utah and north to include the Snake River drainage basin in southern Idaho. This region includes parts of three states, Idaho, Nevada, and Utah.† The

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* A. R. Eschner, B. O. Jones, and R. C. Moyle, Physical Properties of 134 Soils in Six Northeastern States, Paper No. 89 (Upper Darby, Pa., Northeastern Forest Experiment Station, 1957).

** John L. Thames and Edmond I. Swensen, Properties of 160 Soils of Four North Central States, Paper No. 38 (St. Paul, Minn., Lake States Forest Experiment Station, 1956).

† Robert E. Taylor, Some Properties of 144 Soils from Three Intermountain States, Miscellaneous Publication No. 7 (Ogden, Utah, Intermountain Forest and Range Experiment Station, 1956).

climate is variable, reflecting the influence of differences in elevation on precipitation and air temperature. Annual precipitation varies from 5 in. in the hot desert areas to over 30 in. in the high mountains.

9. Soils are likewise variable, ranging from Gray Desert soils to Podzols. Valley soils are largely derived from alluvium. Soils on the higher slopes and plateaus are residual in nature, while some of the Snake River Plain soils are of loessial origin. The residual and loessial soils are largely unclassified and are usually described only in terms of parent material.

Selection of Sites, and Survey Procedures

10. A total of 618 sites were used in the survey, located approximately as shown in fig. B1. Of these, 178 were in the southern, 135 in the northeastern, 161 in the lake states, and 144 in the intermountain region. Sites were established on major soils but were restricted to locations within five miles of a regular weather station, on accessible roads. Not more than five sites were located near each of the selected weather substations. Sites were tentatively selected on the basis of state soil-association maps or county soil-survey maps and detailed highway maps. No site was located more than 100 yd from the road. Each was about one-tenth acre in size, soil and cover conditions were uniform, and the sites were not currently in cultivation.

11. A standard procedure was followed for describing each site and for sampling the soil. Upon establishment, the location, soil, vegetation, and topography were described in detail. In the southern and northeastern regions, all soils were identified by regional soil correlators or surveyors of the Soil Conservation Service (SCS). In the lake states region, county soil maps and farm plan maps supplied by the SCS were used to identify the soils. Twenty-one soils were not classified. In the intermountain region, SCS personnel visited sites or supplied maps to aid in identification; however, 45 soils could not be typed.

12. The soil properties were determined from bulk samples and 2-in.-diameter and 1-3/8-in.-high cores. For sampling purposes, each site was divided into three plots as shown in fig. B2. The bulk samples, composited

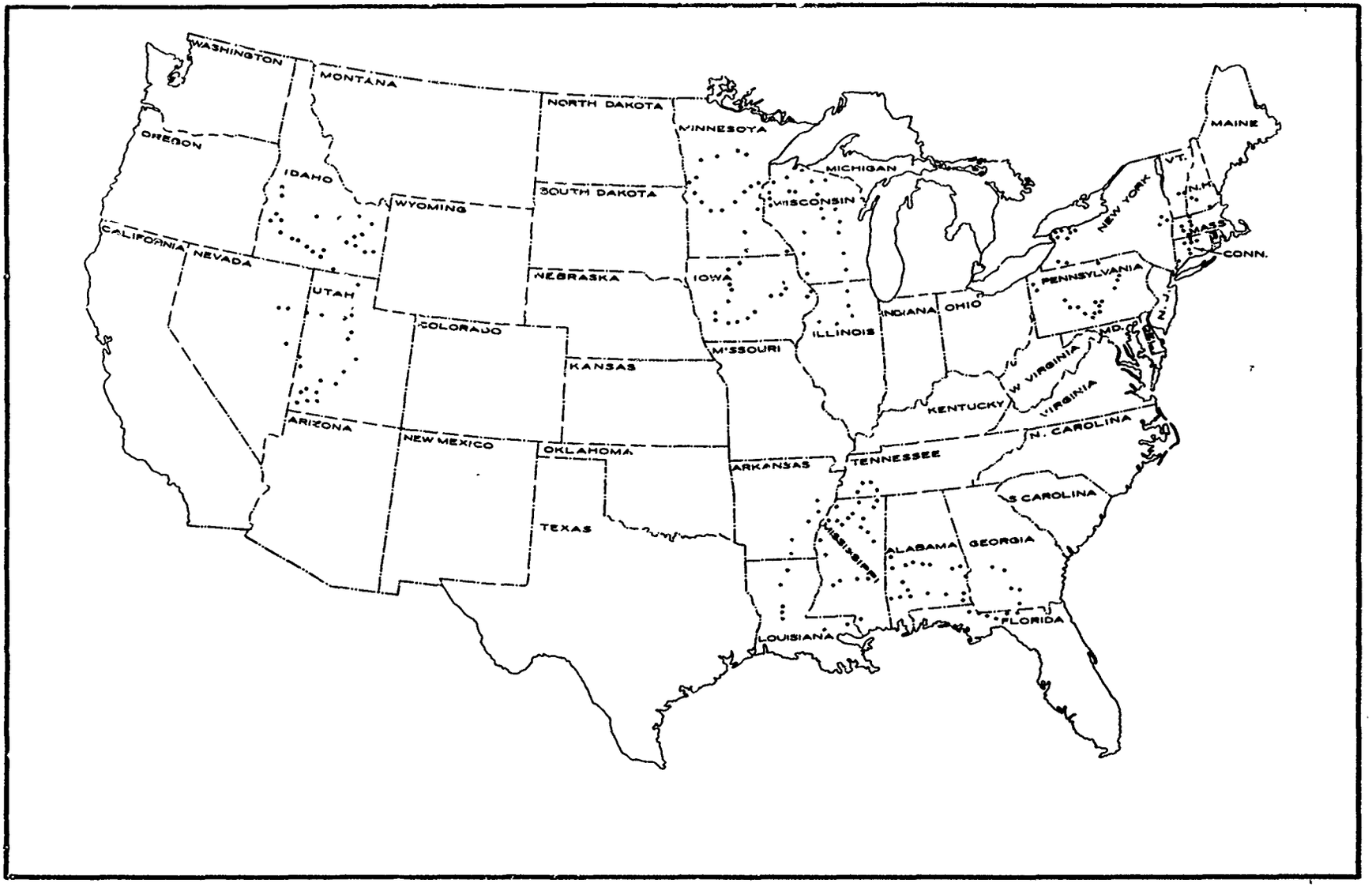


Fig. B1. Location of soil strength-moisture survey sites

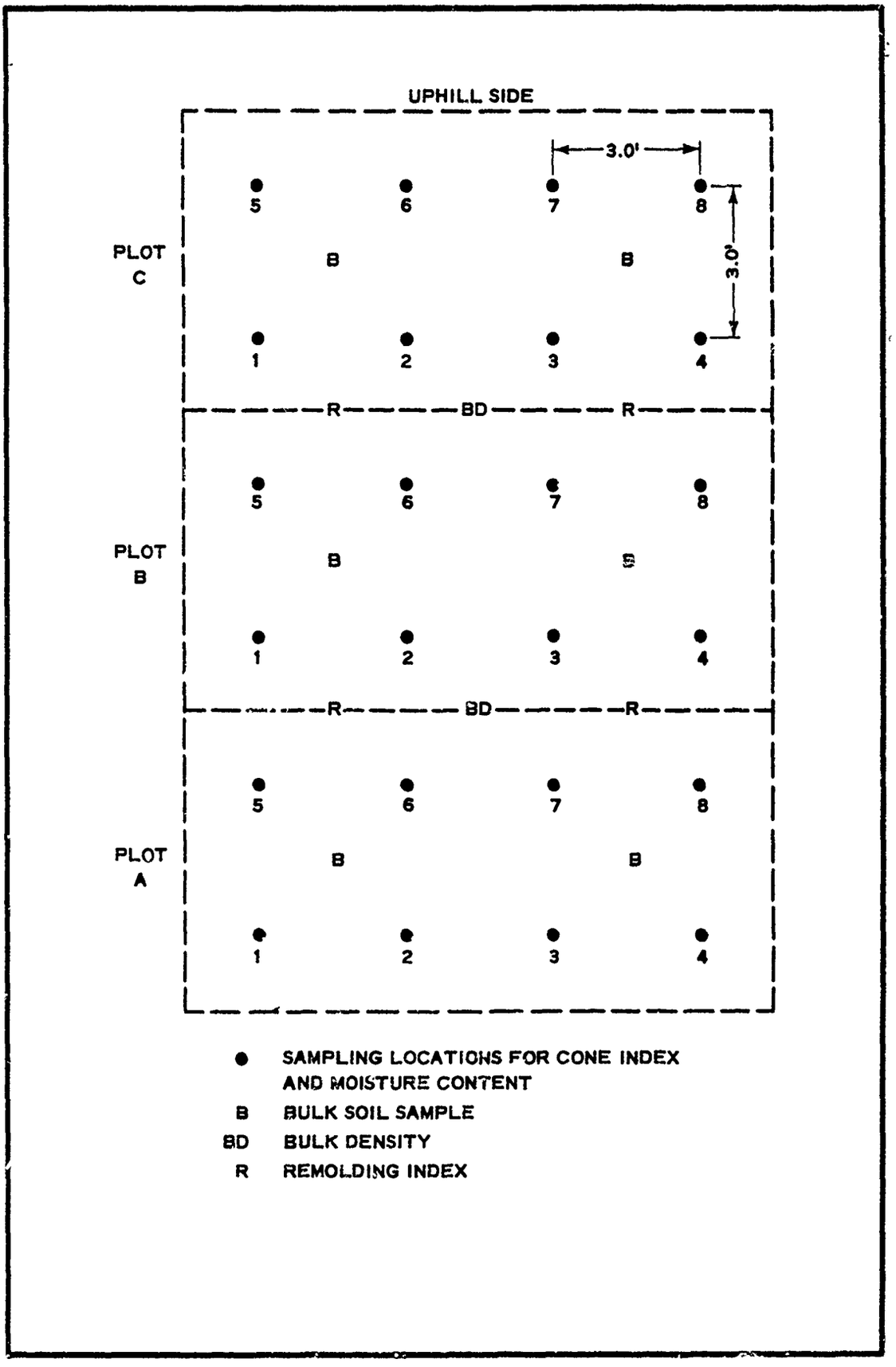


Fig. B2. Sampling system for survey sites

from six locations (two in each plot), were taken from the surface to 6-in., 6- to 12-in., and the 12- to 18-in. layers and used for mechanical analysis and determinations of plasticity constants and organic matter content. Bulk density and tension values were determined from the 2-in.-diameter and 1-3/8-in.-high cores obtained with the modified San Dimas or drive-type sampler* when the soil was moist. Where present, unincorporated organic matter was scraped aside prior to sampling. Cores were taken in duplicate at the surface to 3-in., 3- to 6-in., 6- to 9-in., and 9- to 12-in. layers.

13. At least eight visits at about monthly intervals were made to each site to obtain gravimetric soil-moisture samples at three randomly selected points (one within each plot), and cone index readings at two points one foot apart at each moisture point, making a total of six cone measurements. Samples for moisture determinations were taken at the surface to 6-in., 6- to 12-in., and 12- to 18-in. layers at each sampling point, and the three random samples of each depth were composited in a single container. Cone measurements were taken at the surface, 3-, 6-, 9-, 12-, and 18-in. depths at each spot.

14. On at least two visits, when the soil was wet, remolding values were determined in duplicate for the 6- to 12-in. layer at points shown in fig. B2. In some cases, remolding was done on the surface to 6-in. layer when the 6- to 12-in. sample could not be obtained. In coarse textured and stony soils, the penetrometer with a 0.20-sq-in. cone base was used with the vibrated remolding test when the regular instrument with a 0.5-sq-in. base could not penetrate the soil in the cylinder. Notes of vegetation development, occurrence of free water, site disturbance, etc., were also made at each visit. At very wet sites, auger holes were dug and measurements made of water-table elevation.

Site Locations and Descriptions

15. Table B1 gives the location, land form, topography, wetness index, vegetation, and land use of each survey site. The location is shown

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* L. A. Andrews and W. M. Broadfoot, "The San Dimas soil-core sampler." Soil Science, 85:297-301 (1958).

by the place of the nearest weather station, the county and state, and by the longitude, latitude, and elevation of the site as determined from maps.

16. The land form classification system used in table B1, column 8, was based on decisions reached at a conference held by the Corps of Engineers in January 1953 at the Waterways Experiment Station, and revised in February 1957. The symbols are explained in the following key.

Key to Land Form Symbols

I. Glacial
- A. Nonsoil
- B. Ice
- C. Lacustrine
- D. Drift
  - 1. Outwash
  - 2. Till plain
    - a. Old-layered
    - b. Young-plastic
    - c. Young-granular
  - 3. Moraine
  - 4. Esker
  - 5. Kame terrace

II. Water Deposited
- A. Delta
  - 1. Natural levee
  - 2. Swamp
- B. Flood Plain - Active
  - 1. Undifferentiated alluvium
  - 2. Natural levee
    - a. Crevasse
  - 3. Swamp
  - 4. Point bar
    - a. Ridge
    - b. Swale
- C. Terrace
  - 1. Alluvial
  - 2. Lacustrine
  - 3. Marine
- D. Alluvial Fan
- E. Coastal Plain
  - 1. Beach
  - 2. Marsh
  - 3. Dune
  - 4. Undifferentiated
- F. Desert Plain
- G. Lacustrine
- H. Bajada
- I. Playa

III. Aeolian
- A. Loess
  - 1. Hill
  - 2. Flat
- B. Sand

IV. Residual
- A. Sedimentary Rock
  - 1. Limestone
  - 2. Shale
  - 3. Sandstone
  - 4. Limestone and shale
  - 5. Sandstone and shale
  - 6. Chalk
- B. Igneous and Metamorphic Rock
  - 1. Basalt
  - 2. Metamorphic
  - 3. Intrusive
- C. Unconsolidated Sediment
  - 1. Clay
  - 2. Sand
  - 3. Undifferentiated

V. Miscellaneous
- A. Evaporite
- B. Pyroclastic
- C. Organic
  - 1. Muskeg
  - 2. Peat
  - 3. Swamp
- D. Laterite
- E. Varved clay
- F. Colluvial

17. Under topography, the direction of slope or aspect and the percentage of slope are given. The position of the site is indicated as upland, terrace, or bottomland, with additional information such as ridge, upper slope, etc., included. Surface and internal drainage are shown as good, medium, or poor.

18. The wetness index, described in paragraph 21 of the main report, is an arbitrary classification of site conditions into five groups, considering both depth to water table and depth of moisture penetration, to indicate the maximum moisture content that can be attained in the surface to 12-in. layer. The classification ranges from zero for arid conditions to four when the soil is practically saturated.

19. The predominant vegetation type on the site is listed. Under land use, disturbance such as cultivation or grazing is given. If no evidence of use for about the preceding five years was apparent, the site was considered undisturbed.

Soil Properties

20. The soil properties of each survey site for the surface to 6-in. and 6- to 12-in. layers are listed in table B2; the table is subdivided by the four regions.

21. Texture class follows the terminology given in the U. S. Department of Agriculture Soil Survey Manual, p 210.* The following symbols are used, alone or in combination:

S = sand	C = clay
Si = silt	L = loam

22. The mechanical composition was determined at the Waterways Experiment Station by a combination sieve and hydrometer method,** and is expressed in the table as per cent of dry weight. A previous analysis had an error in technique. Some of the samples were exhausted before the final analysis. Instead of recording blanks, earlier analyses for the exhausted

* U. S. Department of Agriculture, Soil Survey Manual, Handbook 18, (Government Printing Office, 1951), 503 pp, illus.

** U. S. Army Engineer Division, Lower Mississippi Valley, and U. S. Army Engineer Waterways Experiment Station, Soils Laboratory Manual, (Vicksburg, Miss., 1951).

samples were adjusted considering differences between analyses of the other samples, and the adjusted values recorded and indicated by an asterisk (*).

23. Stone content was estimated visually in the field for soils having significant proportions of fragments coarser than 2 mm. In some cases, stones of boulder size occurred on the sites. Stone content is expressed as percentage of the total volume of soil in the surface to 18-in. layer.

24. Organic-matter determinations were made by a modified Walkley rapid-dichromate oxidation method* at the Mississippi Agriculture Experiment Station and are expressed as percentage by weight. When the organic matter content was determined to be more than 5% by the Walkley method, the loss-on-ignition method, following modified procedures of the Association of Official Agricultural Chemists,** was used.

25. The plasticity constants of the 6- to 12-in. layer were determined by the Waterways Experiment Station.† The figures are expressed as moisture content in per cent of dry weight. The liquid limit of some soils of low plasticity, such as sands and sandy loams, cannot be determined with the standard procedure and a modified procedure was used to make tests on these coarse materials as indicated in the table†† by a double asterisk (**). If the sample was exhausted before the modified procedure was used, no value (NV), is indicated.

26. The classification symbols are those of the Unified Soil Classification System (USCS), which has been adopted by the Corps of Engineers to describe soils from an engineering construction standpoint, and

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* Michael Peech, L. T. Alexander, L. A. Dean, and J. F. Reed, Methods of Soil Analysis for Soil-fertility Investigations, Circular 757 (U. S. Department of Agriculture, 1947), 25 pp.

** Association of Official Agricultural Chemists, Official and Tentative Methods of Analysis of the Association, 6th ed (Washington, D. C., 1945), 932 pp, illus.

† Loc. cit., p B8.

†† U. S. Army Engineer Waterways Experiment Station, Modified Method for Determining Liquid Limit of Soils (not yet published). The modified procedure is presently under study in the Soils Division as to its possible utility. The inclusion of data in this report using the modified method in no way indicates that it is approved for official use.

identifies soils according to their textural and plastic qualities.* The amount of fine-grained material is that passing a 200-mesh sieve (<0.074 mm).

27. Bulk density and tension data were obtained from the 2-in. cores described earlier in paragraph 12. The moisture held by the soil at zero tension (saturation) was determined by weighing the 2-in. cores after they had been soaked in a pan of water. As some water was lost during transfer, and as all pores are usually not filled by this method, these values are frequently less than the theoretical maximum. The 0.06-atm tension values were determined by use of a tension table.** The tension values are expressed in percentage of dry weight.

Soil-moisture Content and Strength Data

28. Soil-moisture content and strength (cone and remolding index) data obtained at each visit to the survey sites are presented in table B3, which is subdivided by the four regions. The heading for each site includes the site number, location by county and state, soil series name, the USDA textural class of the surface to 6-in. and 6- to 12-in. layers, and last, in parentheses, the USCS soil symbol for the 6- to 12-in. layer. The column at the left gives the date of the visit. The next three columns list the moisture content on the percentage of dry weight basis of the three 6-in. layers. Each value represents the composite of three random samples. The next two columns give the moisture content by inches of water per 6 in. of soil depth. The next columns give the average cone index (an average of the 6-, 9-, and 12-in. measurements for six penetrations), the average remolding index, and the water-table depth measurements. In the remolding test, if the sample in the cylinder could not be penetrated below the surface, no test (NT) is indicated.

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* U. S. Army Engineer Waterways Experiment Station, The Unified Soil Classification System, Technical Memorandum No. 3-357, vol 1 (Vicksburg, Miss., 1953), 30 pp, illus.

** R. M. Leamer and B. Shaw, "A simple apparatus for measuring non-capillary porosity on an extensive scale," Jour. Amer. Soc. Agron., 33:1003 (1941).

Table B1

Location and Description of Strength-moisture Survey Sites

Site No.	Weather Station	County or Parish	State	Lat	Long.	El ft	Eng Conf Land Form	Topography: Aspect	Topography: Position	Topography: Slope %	Drainage: Surface	Drainage: Internal	Wetness Index	Vegetation	Land Use
							Southern Region								
101	Rolling Fork	Sharkey	Miss.	32°52'	50°52'	105	IIB2	Level	Terrace flat	0	Poor	Medium	2	Herbaceous	Cultivated hay
102	Rolling Fork	Sharkey	Miss.	32°53'	90°52'	105	IIB2	Level	Terrace flat	0	Poor	Medium	2	Herbaceous	Lawn
103	Rolling Fork	Sharkey	Miss.	33°55'	90°52'	105	IIB2	Level	Terrace flat	0	Poor	Medium	2	Herbaceous	Cultivated (idle)
104	Rolling Fork	Sharkey	Miss.	33°58'	90°52'	105	IIB2	Level	Terrace flat	0	Poor	Medium	3	Herbaceous	Hay (airport)
105	Stoneville	Washington	Miss.	33°25'	90°55'	127	IIB2	Level	Terrace flat	0	Good	Good	2	Herbaceous	Lawn
106	Stoneville	Washington	Miss.	33°28'	90°55'	127	IIB3/1*	Level	Bottom flat	0	Poor	Poor	4	Hardwood forest, dense understory	Undisturbed
107	Stoneville	Washington	Miss.	33°27'	90°55'	127	IIB3/1	Level	Bottom flat	0	Poor	Poor	4	Hardwood forest, dense understory	Undisturbed
108	Stoneville	Washington	Miss.	33°24'	90°56'	127	IIB3/1	Level	Bottom flat	0	Poor	Poor	4	Hardwood forest	Partly logged
109	Clarksdale	Coahoma	Miss.	34°08'	90°36'	177	IIB4b	Level	Bottom flat	0	Poor	Poor	4	Herbaceous	Lawn
110	Clarksdale	Coahoma	Miss.	34°10'	90°36'	177	IIB4b	Level	Bottom flat	0	Poor	Poor	4	Herbaceous	Grazed
111	Clarksdale	Coahoma	Miss.	34°13'	90°32'	177	IIB2	Level	Terrace	0	Poor	Good	3	Herbaceous	Undisturbed
112	Tunica	Tunica	Miss.	34°40'	90°23'	190	IIB2/4a	Level	Terrace	0	Poor	Good	4	Herbaceous	Grazed
113	Tunica	Tunica	Miss.	34°41'	90°23'	190	IIB2/3	Level	Bottom flat	0	Poor	Poor	4	Herbaceous	Undisturbed
114	Tunica	Tunica	Miss.	34°43'	90°23'	190	IIB4b	Northwest	Bottom flat	4	Poor	Medium	4	Herbaceous	Undisturbed
115	Forest City	St. Francis	Ark.	35°01'	90°46'	261	IIIA1	Level	Upland ridge	0	Good	Good	2	Hardwood forest	Undisturbed
116	Forest City	St. Francis	Ark.	35°01'	90°47'	261	IIIA1	East	Upland ridge	3	Good	Poor	2	Locust plantation	Undisturbed
117	Forest City	St. Francis	Ark.	35°01'	90°47'	261	IIIA1	West	Upland upper slope	35	Good	Medium to good	2	Hardwood forest	Undisturbed
118	Marianna	Lee	Ark.	34°42'	90°52'	234	IIC1	Northeast	Terrace slope	8	Good	Medium to good	2	Herbaceous	Grazed
119	Marianna	Lee	Ark.	34°40'	90°49'	234	IIC1	Level	Terrace flat	0	Medium	Medium to good	2	Herbaceous	Undisturbed
120	Marianna	Lee	Ark.	34°44'	90°46'	234	IIC1	Level	Terrace flat	0	Poor	Poor	3	Herbaceous	Grazed
121	Marvell	Phillips	Ark.	34°33'	90°51'	195	IIC1	Level	Terrace flat	0	Poor	Poor	2	Herbaceous	Grazed
122	Marvell	Phillips	Ark.	34°33'	90°56'	195	IIC1	Level	Bottom flat	0	Poor	Poor	4	Hardwood forest	Undisturbed
123	Marvell	Phillips	Ark.	34°35'	90°59'	195	IIC1	Level	Bottom flat	0	Poor	Poor	4	Hardwood forest	Undisturbed
124	Monticello	Drew	Ark.	33°39'	91°48'	285	IVC1	Northeast	Upland upper slope	4	Good	Good	2	Herbaceous, scattered trees	Undisturbed
125	Monticello	Drew	Ark.	33°36'	91°48'	285	IVC1	West	Upland upper slope	8	Good	Good	2	Loblolly pine and oak	Logged
126	Crossett	Ashley	Ark.	33°00'	91°58'	175	IIC1	Level	Upland flat	0	Good	Good	2	Loblolly pine, gum and pine understory	Undisturbed
127	Crossett	Ashley	Ark.	33°01'	91°59'	175	IIC1	Level	Terrace flat	0	Poor	Poor	2	Herbaceous	Grazed
128	Crossett	Ashley	Ark.	33°00'	92°00'	175	IIC1	Level	Bottom flat	0	Poor	Poor	4	Willow and oak, May haw understory	Undisturbed
129	Crossett	Ashley	Ark.	33°01'	91°57'	175	IIC1	North	Upland upper flat	3	Good	Good to medium	2	Planted loblolly pine	Undisturbed
130	Crossett	Ashley	Ark.	33°01'	91°57'	175	IIC1	North	Upland upper slope	4	Good	Good to medium	2	Herbaceous	Grazed
131	Bastrop	Morehouse	La.	32°49'	91°53'	136	IIC1	West	Terrace slope	4	Good	Good	2	Loblolly pine, sweet gum and oak	Undisturbed
132	Bastrop	Morehouse	La.	32°48'	91°53'	136	IIC1	Level	Terrace flat	0	Good	Good	2	Herbaceous	Undisturbed
133	Bastrop	Morehouse	La.	32°47'	91°56'	136	IIC1	Level	Terrace flat	0	Poor	Poor	3	Herbaceous with some trees	Undisturbed
134	Calhoun	Ouachita	La.	32°31'	92°21'	180	IVC2	East	Upland upper flat	2	Good	Good	2	Herbaceous	Undisturbed
135	Calhoun	Ouachita	La.	32°31'	92°21'	180	IVC2	South	Terrace slope	4	Medium	Poor	2	Herbaceous	Undisturbed
136	Calhoun	Ouachita	La.	32°31'	92°21'	180	IVC2	Northeast	Upland upper slope	6	Good	Good	2	Loblolly pine, herbaceous understory	Undisturbed
137	Pollock	Grant	La.	31°35'	92°25'	230	IIC1	East	Upland upper slope	6	Good	Good	1	Longleaf pine, herbaceous understory	Undisturbed
138	Pollock	Grant	La.	31°33'	92°24'	230	IIB1	Level	Bottom flat	0	Good	Good	4	Hardwood forest	Undisturbed
139	Pollock	Grant	La.	31°28'	92°24'	230	IIC1	East	Upland upper slope	4	Good	Medium	2	Longleaf pine, herbaceous understory	Undisturbed
140	Alexandria	Rapides	La.	31°25'	92°29'	80	IIB2	Level	Bottomland	0	Poor	Good	2	Herbaceous	Undisturbed
141	Glenmore	Rapides	La.	31°02'	92°37'	80	IIC1	West	Upland upper slope	6	Good	Medium	2	Herbaceous	Grazed
142	Glenmore	Rapides	La.	31°02'	92°37'	80	IIC1	Level	Upland flat	0	Poor	Poor	4	Herbaceous	Grazed
143	North Livingston	Livingston	La.	30°30'	90°48'	14	IIC1	Level	Terrace flat	0	Poor	Poor	2	Loblolly pine	Undisturbed
144	North Livingston	Livingston	La.	30°30'	90°44'	14	IIC1	Level	Terrace flat	0	Poor	Poor	2	Herbaceous	Grazed
145	Covington	St. Tammany	La.	31°31'	91°02'	39	IIC1	Level	Terrace flat	0	Poor	Poor	4	Herbaceous	Grazed
146	Covington	St. Tammany	La.	30°29'	90°08'	39	IIC1	Level	Terrace flat	0	Poor	Medium	2	Loblolly pine, herbaceous understory	Undistrubed

(Continued)

* Diagonal (/) represents "or."

Table B1 (Continued)

Site No.	Weather Station	County or Parish	State	Lat	Long.	El ft	Eng Conf Land Form	Topography: Aspect	Topography: Position	Topography: Slope %	Drainage: Surface	Drainage: Internal	Wetness Index	Vegetation	Land Use
								Southern Region (Continued)							
147	Poplarville	Pearl River	Miss.	30°48'	89°41'	313	IVC3	Level	Upland flat	0	Good to medium	Good to medium	2	Herbaceous	Lawn
148	Poplarville	Pearl River	Miss.	30°48'	89°41'	313	IVC3	Northwest	Upland upper slope	3	Good	Poor to medium	2	Herbaceous	Hay
149	Poplarville	Pearl River	Miss.	30°48'	89°41'	313	IVC3	East	Upland upper slope	6	Good	Poor	3	Herbaceous	Hay
201	Utica	Hinds	Miss.	32°13'	90°41'	287	IIB1	Level	Bottom flat	0	Poor	Poor	4	Herbaceous	Grazed
202	Utica	Hinds	Miss.	32°11'	90°38'	287	IIIA1	South	Upland upper slope	5	Good	Good	2	Mixed pine - hardwood	Undisturbed
203	Utica	Hinds	Miss.	32°07'	90°36'	287	IVC3	West	Upland upper slope	5	Good	Good to medium	2	Mixed pine - hardwood, herbaceous understory	Grazed
204	Utica	Hinds	Miss.	32°08'	90°32'	287	IIB1	Level	Bottom flat	0	Poor	Medium	2	Herbaceous	Fallowed
205	Oakley	Hinds	Miss.	32°12'	90°30'	287	IVC3	Level	Terrace	0	Medium	Poor	2	Hardwood forest	Grazed
206	Oakley	Hinds	Miss.	32°12'	90°30'	287	IIB1	Level	Terrace flat	0	Good	Medium	3	Herbaceous	Grazed
207	Oakley	Hinds	Miss.	32°11'	90°31'	287	IVC3	North	Upland upper slope	5	Good	Medium	3	Herbaceous	Hay
208	Oakley	Hinds	Miss.	32°13'	90°31'	287	IVC3	Level	Upland flat	0	Poor	Poor	4	Herbaceous	Hay
209	Oakley	Hinds	Miss.	32°13'	90°31'	287	IVC3	Level	Upland flat	0	Medium	Poor	4	Hardwood forest	Undisturbed
210	Forest	Scott	Miss.	32°21'	89°32'	485	IVC1	East	Upland upper slope	5	Good	Poor	3	Loblolly - shortleaf pine, brush understory	Undisturbed
211	Forest	Scott	Miss.	32°20'	89°28'	485	IVC1	Level	Upland flat	0	Poor	Medium to poor	3	Loblolly pine	Undisturbed
212	Forest	Scott	Miss.	32°22'	89°27'	485	IVC1	Level	Upland flat	0	Poor	Poor	4	Mixed hardwood and pine, hardwood understory	Undisturbed
213	Forest	Scott	Miss.	32°22'	89°26'	485	IVC1	Level	Upland flat	0	Poor	Poor	3	Herbaceous	Cultivated (idle)
214	Newton	Newton	Miss.	32°20	89°04'	346	IIC1	South	Terrace flat	2	Good to medium	Medium	3	Herbaceous	Hay
215	[illegible]	Newton	Miss.	32°20'	89°06'	346	IIB1	Level	Bottom flat	0	Poor	Medium	4	Herbaceous	Cultivated (idle)
216	Newton	Newton	Miss.	32°20'	89°06'	346	IIC1	South	Terrace slope	8	Good	Good	2	Herbaceous	Hay
217	Newton	Newton	Miss.	32°20'	89°05'	346	IVC3	Northeast	Upland upper slope	5	Good	Poor	3	Herbaceous	Grazed
218	Newton	Newton	Miss.	32°20'	89°04'	346	IVC3	Southwest	Upland upper slope	10	Good	Good	2	Mixed pine - hardwood, herbaceous understory	Undisturbed
219	Brooksville	Noxubee	Miss.	33°16'	88°33'	292	IVA0	Level	Upland flat	0	Poor	Poor	4	Herbaceous	Grazed
220	Brooksville	Noxubee	Miss.	33°16'	88°33'	292	IVA0	South	Upland upper flat	6	Good	Medium to poor	3	Herbaceous	Grazed
221	Brooksville	Noxubee	Miss.	33°16'	88°33'	292	IVA0	South	Upland upper flat	4	Poor	Poor	2	Herbaceous	Grazed - experimental plot
222	Starkville	Oktibbeha	Miss.	33°26'	88°47'	280	IIB1*	Northeast	Bottom flat	3	Poor	Medium	2	Herbaceous	Cultivated (idle)
223	Starkville	Oktibbeha	Miss.	33°28'	88°46'	280	IIB1*	Level	Terrace flat	0	Medium	Medium to good	3	Herbaceous	
224	Dancy	Webster	Miss.	33°37'	89°03'	360	IVC3	Level	Upland flat	0	Poor	Poor	2	Hardwood forest	Undisturbed
225	Dancy	Webster	Miss.	33°38'	89°03'	360	IVC3	South	Upland upper slope	3	Medium	Poor	4	Herbaceous - few pine seedlings	Undisturbed
226	Dancy	Webster	Miss.	33°38'	89°04'	360	IIB1*	Level	Terrace flat	0	Poor	Poor	4	Herbaceous	Cultivated (idle)
227	Pontotoc	Pontotoc	Miss.	34°08'	89°00'	405	IVC3	Level	Upland flat	0	Poor	Poor	3	Herbaceous	Lawn
228	Pontotoc	Pontotoc	Miss.	34°08'	89°01'	405	IIB1*	Level	Bottom flat	0	Poor	Poor	4	Hardwood forest	Undisturbed
229	Pontotoc	Pontotoc	Miss.	34°09'	89°00'	405	IVC3	South	Upland ridge	3	Good	Good	2	Loblolly pine, herbaceous understory	Undisturbed
230	Booneville	Prentiss	Miss.	34°36'	88°37'	504	IVC3	Level	Upland flat	0	Medium	Medium	2	Herbaceous	Cultivated (idle)
231	Booneville	Prentiss	Miss.	34°37'	88°35'	504	IVC3	Northeast	Upland upper slope	8	Good	Good	2	Hardwood forest	Undisturbed
232	Booneville	Prentiss	Miss.	34°42'	88°33'	504	IIB1*	Level	Bottom flat	0	Poor	Poor	4	Herbaceous	Grazed
233	Corinth	Alcorn	Miss.	34°53'	88°33'	490	IIB1*	Level	Bottom flat	0	Poor	Poor	4	Herbaceous	Cultivated (idle)
234	Corinth	Alcorn	Miss.	34°53'	88°27'	490	IVC3	Southeast	Upland upper slope	4	Good	Good	2	Mixed pine - hardwood	Undisturbed
235	Corinth	Alcorn	Miss.	34°55'	88°31'	490	IIC1*	Level	Terrace flat	0	Poor	Poor	3	Herbaceous	Hay
236	Selmer	McNairy	Tenn.	35°09'	88°35'	410	IIC1*	Level	Terrace flat	0	Poor	Poor	4	Herbaceous	Grazed
237	Selmer	McNairy	Tenn.	35°11'	88°36'	410	IVC3	Northeast	Upland ridge	3	Good	Good	2	Hardwood forest	Undisturbed
238	Jackson	Madison	Tenn.	35°37'	88°51'	400	IIB1*	Level	Bottom flat	0	Poor	Poor	4	Herbaceous	Grazed
239	Jackson	Madison	Tenn.	35°37'	88°51'	400	IIC1	Northeast	Terrace slope	20	Good	Good	2	Herbaceous	Grazed
240	Jackson	Madison	Tenn.	35°37'	88°51'	400	IIC1	South	Terrace slope	3	Medium to good	Good	3	Herbaceous	Cultivated (grazed)
241	Jackson	Madison	Tenn.	35°37'	88°51'	400	IIC1	Southwest	Terrace slope	3	Poor	Poor	3	Herbaceous	Hay
242	Brownsville	Haywood	Tenn.	35°36'	89°14'	360	IVC3*	Southeast	Upland upper slope	6	Good	Medium	2	Herbaceous with some trees	Undisturbed

(Continued)

* Engineering Conference Land Form questionably.

Table B1 (Continued)

Site No.	Weather Station	County or Parish	State	Lat	Long.	El ft	Eng Conf Land Form	Topography: Aspect	Topography: Position	Topography: Slope %	Drainage: Surface	Drainage: Internal	Wetness Index	Vegetation	Land Use
								Southern Region (Continued)							
243	Brownsville	Haywood	Tenn.	35°35'	89°16'	360	IIB1	Level	Bottom flat	0	Poor	Poor	3	Herbaceous	Cultivated (idle)
244	Moscow	Fayette	Tenn.	35°06'	89°23'	352	IVC3	West	Upland upper slope	6	Good	Good	2	Hardwood forest	Undisturbed
245	Moscow	Fayette	Tenn.	35°04'	89°22'	352	IIB1	Level	Bottom flat	0	Poor	Poor	4	Herbaceous	Lawn
246	Holly Springs	Marshall	Miss.	34°49'	89°26'	485	IIIA2*	Level	Upland flat	0	Poor	Poor	3	Herbaceous	Lawn
247	Holly Springs	Marshall	Miss.	34°49'	89°26'	485	IIIA1*	Level	Upland flat	0	Poor	Medium	3	Herbaceous	Grazed
248	Holly Springs	Marshall	Miss.	34°49'	89°26'	485	IIIA1*	West	Upland flat	3	Poor	Poor	3	Herbaceous	Grazed
249	Holly Springs	Marshall	Miss.	34°49'	89°26'	485	IIIA1*	Southeast	Upland upper slope	6	Good	Medium	3	Herbaceous	Grazed
250	Sardis Dam	Panola	Miss.	34°25'	89°48'	234	IIIA1*	North	Upland upper slope	3	Good	Good	2	Hardwood forest	Undisturbed
251	Sardis Dam	Panola	Miss.	34°24'	89°48'	234	IIC1*	Level	Bottom flat	0	Poor	Medium	2	Herbaceous	Airfield
252	Sardis Dam	Panola	Miss.	34°21'	89°48'	234	IIC1*	Level	Terrace flat	0	Poor	Poor	2	Hardwood forest	Undisturbed
253	Batesville	Panola	Miss.	34°16'	89°46'	234	IIC1*	East	Bottom flat	3	Medium	Medium	4	Herbaceous	Grazed
254	Batesville	Panola	Miss	34°16'	89°46'	234	IIIA1*	East	Upland upper slope	5	Good	Good	2	Herbaceous	Grazed
255	Batesville	Panola	Miss.	34°16'	89°46'	234	IIC1*	Level	Terrace flat	0	Poor	Poor	4	Herbaceous	Grazed
256	Batesville	Panola	Miss.	34°19'	90°03'	230	IIC1*	Level	Bottom flat	0	Poor	Medium	4	Herbaceous with some trees	Grazed
257	Lambert	Quitman	Miss.	34°16'	90°16'	159	IIB1	Level	Terrace flat	0	Poor	Poor to medium	3	Herbaceous with some trees	Grazed
258	Lambert	Quitman	Miss.	34°15'	90°16'	159	IIB3/4b	Level	Terrace flat	0	Poor	Poor	2	Herbaceous	Lawn
259	Lambert	Quitman	Miss.	34°14'	90°17'	159	IIB4b	Level	Bottom flat	0	Poor	Poor	4	Cypress, gum, elm, and hackberry	Undisturbed
260	Lambert	Quitman	Miss.	34°09'	90°20'	159	IIB3	Level	Bottom flat	0	Poor	Poor	4	Herbaceous	Grazed
261	Vance	Quitman	Miss.	34°04'	90°20'	150	IIC1*	Level	Terrace flat	0	Poor	Medium	3	Pecan grove, herbaceous	Grazed
301	Chatom	Washington	Ala.	31°28'	88°16'	195	IVC3	North	Upland upper slope	15	Good	Poor	2	Slash pine and red oak	Undisturbed
302	Chatom	Washington	Ala.	31°27'	88°15'	195	IVC3*	Level	Upland flat	0	Poor	Poor	4	Mixed pine and oak	Undisturbed
303	Chatom	Washington	Ala.	31°27'	88°14'	195	IVC3*	South	Upland upper slope	5	Good	Good	4	Herbaceous with some trees	Grazed
304	Jackson	Washington	Ala.	31°31'	87°56'	10	IIB1	Level	Bottom flat	0	Medium	Medium	3	Herbaceous	Grazed
305	Jackson	Clarke	Ala.	31°31'	87°55'	10	IIC1*	South	Upland flat	6	Good	Good	2	Hardwood forest, hardwood and pine understory	Undisturbed
306	Jackson	Clarke	Ala.	31°33'	87°53'	170	IVC3*	Southeast	Upland upper slope	5	Good	Good	2	Herbaceous	Grazed
307	Thomasville	Clarke	Ala.	31°46'	87°45'	170	IVC3*	West	Upland upper slope	12	Good	Good	2	Pine forest	Undisturbed
308	Thomasville	Clarke	Ala.	31°48'	87°45'	170	IVC2*	North	Upland upper flat	5	Good	Medium	2	Loblolly pine and dogwood, hickory and oak understory	Undisturbed
309	Whatley	Clarke	Ala.	31°39'	87°42'	170	IIC1*	South	Upland upper slope	20	Good	Good	2	Pine forest	Undisturbed
310	Claiborne	Monroe	Ala.	31°33'	87°31'	183	IIC1*	East	Terrace slope	4	Good	Good	2	Herbaceous	Grazed
311	Claiborne	Monroe	Ala.	31°32'	87°30'	183	IIC1*	Level	Upland flat	0	Poor	Medium	3	Herbaceous	Cultivated (grazed)
312	Evergreen	Conecuh	Ala.	31°84'	87°01'	252	IVC3*	North	Upland upper slope	5	Good	Good	2	Herbaceous with some trees	Cultivated (idle)
313	Evergreen	Conecuh	Ala.	31°25'	86°56'	252	IVC3*	North	Upland upper slope	15	Good	Good	2	Mixed hardwood and pine	Undisturbed
314	Evergreen	Conecuh	Ala.	31°25'	86°56'	252	IIB1*	Level	Bottom flat	0	Poor	Poor	4	Herbaceous	Grazed
315	Elba	Coffee	Ala.	31°25'	86°04'	204	IVC3*	Southwest	Upland upper slope	20	Good	Good	2	Herbaceous	Cultivated (idle)
316	Headland	Henry	Ala.	31°2[illegible]'	85°20'	370	IVC3*	Level	Upland flat	0	Good	Good	2	Herbaceous	Lawn
317	Headland	Henry	Ala.	31°22'	85°19'	370	IVC3*	Level	Upland flat	0	Good	Good	2	Herbaceous	Grazed
318	Headland	Henry	Ala.	31°18'	85°21'	370	IVC3*	Northeast	Upland upper slope	8	Good	Good	2	Herbaceous	Cultivated (idle)
319	Dothan	Houston	Ala.	31°15'	85°26'	321	VC3*	Level	Bottom flat	0	Poor	Poor	4	Cypress Forest	Undisturbed
320	Dothan	Houston	Ala.	31°14'	85°26'	321	IVC3*	Level	Upland flat	0	Good	Good	2	Planted pine	Undisturbed
321	Marianna	Jackson	Fla.	30°48'	85°18'	110	IVC3*	Southeast	Upland upper slope	5	Good	Good	2	Herbaceous	Grazed
322	Marianna	Jackson	Fla.	30°48'	85°15'	110	IVC3*	Level	Upland depression	0	Poor	Poor	2	Mixed hardwood - pine brush understory	Undisturbed
323	Marianna	Jackson	Fla.	30°45'	85°09'	110	IVC2*	Level	Upland flat	0	Poor	Medium	2	Pine forest	Grazed
324	Chattahoochee	Gadsden	Fla.	30°42'	84°51'	90	IIB1*	Level	Bottom flat	0	Poor to medium	Medium	3	Oak willow, brush understory	Undisturbed
325	Chattahoochee	Gadsden	Fla.	30°42'	84°50'	90	IVC2*	South	Upland upper slope	12	Good	Good to medium	2	Planted slash pine	Undisturbed
326	Chattahoochee	Gadsden	Fla.	30°42'	84°50'	90	IIC1*	Level	Terrace flat	0	Poor to medium	Medium to poor	2	Herbaceous with some trees	Hay
327	Quincy	Gadsden	Fla.	30°36'	84°34'	250	IVC3*	Level	Upland flat	0	Medium	Good	2	Herbaceous	Cultivated (idle)
328	Tallahassee	Leon	Fla.	30°27'	84°14'	64	IVC*	South	Upland upper slope	3	Medium to good	Medium to good	2	Slash pine with herbaceous understory	Undisturbed
329	Tallahassee	Leon	Fla.	30°27'	84°14'	64	IIC1*	Level	Bottom depression	0	Poor to medium	Medium to good	4	Herbaceous	Grazed

(Continued)

* Engineering Conference Land Form questionable.

Table B1 (Continued)

Site No.	Weather Station	County or Parish	State	Lat	Long.	El ft	Eng Conf Land Form	Topography: Aspect	Topography: Position	Topography: Slope %	Drainage: Surface	Drainage: Internal	Wetness Index	Vegetation	Land Use
								Southern Region (Continued)							
330	Monticello	Jefferson	Fla.	30°32'	83°50'	202	IVC*	Level	Upland depression	0	Poor to medium	Poor to medium	2	Mixed pine - hardwood	Undisturbed
331	Monticello	Jefferson	Fla.	30°32'	83°50'	202	IVC2*	Level	Upland flat	0	Medium	Good	2	Herbaceous	Grazed
332	Monticello	Jefferson	Fla.	30°31'	83°48'	202	IVC2*	Level	Upland flat	0	Poor	Poor to medium	3	Longleaf pine, palmetto and bracken fern understory	Undisturbed
333	Madison	Madison	Fla.	30°28'	83°25'	145	IVC2*	South	Upland upper slope	12	Good	Good	2	Planted slash pine	Undisturbed
334	Madison	Madison	Fla.	30°30'	83°22'	145	IVC2*	Southwest	Upland upper slope	3	Good	Good	2	Herbaceous, hay and oats	Cultivated
335	Valdosta	Lowndes	Ga.	30°52'	83°17'	200	IIC1*	Level	Upland flat	0	Medium	Medium	2	Herbaceous	Cultivated (idle)
336	Valdosta	Lowndes	Ga.	30°54'	83°17'	200	IIC1*	Level	Upland depression	0	Poor	Poor	2	Slash pine, herbaceous understory	Undisturbed
337	Alapaha	Berrien	Ga.	31°21'	83°13'	293	IIC1*	Level	Upland flat	0	Poor to medium	Medium	2	Pine forest, herbaceous understory	Grazed
338	Alapaha	Berrien	Ga.	31°21'	83°13'	293	IIC3*	Level	Upland flat	0	Poor	Medium to poor	2	Herbaceous	Grazed
339	Tifton	Tift	Ga.	31°26'	83°29'	370	IIC3*	Level	Terrace flat	0	Poor	Poor to medium	4	Herbaceous	Undisturbed
340	Tifton	Tift	Ga.	31°29'	83°31'	370	IVC3*	Southwest	Upland upper slope	5	Good	Medium	2	Herbaceous	Grazed
341	Cordele	Crisp	Ga.	31°57'	83°47'	310	IVC3	North	Upland upper slope	5	Good	Good	2	Herbaceous	Undisturbed
342	Cordele	Crisp	Ga.	31°57'	83°47'	310	IVC3*	Level	Upland depression	0	Poor	Poor to medium	2	Slash pine, herbaceous understory	Undisturbed
343	Cordele	Crisp	Ga.	31°58'	83°48'	310	IVC3*	Level	Upland flat	0	Medium	Poor to medium	2	Herbaceous	Cultivated (idle)
344	Americus	Sumter	Ga.	32°04'	84°14'	450	IVC3	Southeast	Upland flat	3	Good	Good	2	Planted pine	Undisturbed
345	Americus	Sumter	Ga.	32°04'	84°15'	450	IVC3	South	Upland upper slope	5	Good	Good	2	Herbaceous	Cultivated (idle)
346	Americus	Sumter	Ga.	32°04'	84°16'	450	IVC3	North	Upland upper slope	4	Good	Medium	2	Herbaceous	Cultivated (idle)
347	Eufaula	Quitman	Ga.	31°53'	85°35'	290	IIC1	Level	Terrace flat	0	Poor	Poor	4	Herbaceous	Grazed
348	Eufaula	Barbour	Ala.	31°53'	85°08'	254	IVC3*	Level	Upland flat	0	Good	Good	2	Herbaceous with some trees	Undisturbed
349	Eufaula	Barbour	Ala.	31°53'	85°08'	254	IVC3	South	Upland upper slope	8	Good	Good	2	Slash and shortleaf pine, herbaceous understory	Undisturbed
350	Midway	Bullock	Ala.	32°03'	85°29'	490	IVC3	South	Upland upper slope	8	Good	Poor	4	Shortleaf pine, herbaceous understory	Undisturbed
351	Midway	Bullock	Ala.	32°05'	85°31'	490	IIB1*	Level	Bottom flat	0	Poor	Poor	4	Herbaceous	Cultivated (idle)
352	Union Springs	Bullock	Ala.	32°03'	85°37'	380	IVC3	South	Upland upper slope	6	Good	Poor	4	Shortleaf and loblolly pine, herbaceous understory	Grazed
353	Union Springs	Bullock	Ala.	32°08'	85°40'	380	IVC3	North	Upland upper slope	15	Good	Poor	2	Shortleaf and loblolly pine	Undisturbed
354	Union Springs	Bullock	Ala.	32°08'	85°45'	380	IIB1	South	Bottom flat	4	Poor	Poor	2	Herbaceous	Grazed
355	Selma	Dallas	Ala.	32°25'	87°00'	147	IIC1*	Level	Terrace flat	0	Poor	Poor	4	Shortleaf pine, herbaceous understory	Grazed
356	Selma	Dallas	Ala.	32°26'	87°00'	147	IIC1*	Level	Terrace flat	0	Poor	Medium	2	Herbaceous	Grazed
357	Selma	Dallas	Ala.	32°27'	87°02'	147	IIC1*	Level	Terrace flat	0	Poor	Poor	4	Herbaceous	Grazed
358	Marian Junction	Dallas	Ala.	32°27'	87°08'	204	IIC1*	Level	Terrace flat	0	Poor	Poor	4	Loblolly pine, herbaceous understory	Undisturbed
359	Marian Junction	Dallas	Ala.	32°27'	87°15'	204	IVA6*	East	Upland upper slope	6	Good	Medium	3	Herbaceous	Grazed
360	Marian Junction	Dallas	Ala.	32°27'	87°15'	204	IIB1*	Level	Bottom flat	0	Poor	Poor	3	Herbaceous	Grazed
361	Uniontown	Perry	Ala.	32°29'	87°31'	273	IVA6	Southwest	Upland upper slope	8	Good	Poor	3	Herbaceous	Grazed
362	Demopolis	Marengo	Ala.	32°30'	87°46'	100	IVA6	East	Upland flat	3	Good	Medium	3	Herbaceous	Grazed
364	Demopolis	Marengo	Ala.	32°29'	87°48'	100	IVC3*	Level	Upland flat	0	Poor	Poor	4	Hardwood forest	Undisturbed
365	Livingston	Sumter	Ala.	32°35'	88°11'	160	IIC1	Level	Terrace flat	0	Poor	Poor to medium	3	Herbaceous	Grazed
366	Livingston	Sumter	Ala.	32°35'	88°12'	160	IIC1	West	Terrace flat	3	Poor	Poor	4	Mixed pine - hardwood	Undisturbed
367	Livingston	Sumter	Ala.	32°35'	88°13'	160	IIC1*	Level	Upland flat	0	Good to medium	Good	3	Loblolly pine, herbaceous understory	Undisturbed
368	Cuba	Sumter	Ala.	32°29'	88°24'	215	IIB1	Level	Bottom flat	0	Poor	Poor	4	Hardwood forest	Undisturbed
369	Cuba	Sumter	Ala.	32°29'	88°24'	215	IVC3*	South	Upland upper slope	10	Good	Poor	3	20-yr loblolly pine	Undisturbed

(Continued)

* Engineering Conference Land Form questionable.

Table B1 (Continued)

Site No.	Weather Station	County or Parish	State	Lat	Long.	El ft	Eng Conf Land Form	Topography: Aspect	Topography: Position	Topography: Slope %	Drainage: Surface	Drainage: Internal	Wetness Index	Vegetation	Land Use
								Northeastern Region							
1	Berwick	Luzerne	Pa.	41°11'	76°04'	620	IIB1	Level	Bottom flat	0	Medium	Good	3	Herbaceous	Fallow
2	Berwick	Luzerne	Pa.	41°11'	76°04'	620	IIB1	Level	Bottom flat	0	Medium	Good	2	Fire cherry, sycamore and hickory	Undisturbed
3	Berwick	Luzerne	Pa.	41°11'	76°05'	640	IID*	South	Terrace slope	5	Good	Good	2	Sumac with herbaceous understory	Undisturbed
4	Pikes Creek	Luzerne	Pa.	41°16'	76°04'	1100	IVA5	North	Upland upper slope	3	Good	Good to medium	3	Hardwood forest	Undisturbed
5	Pikes Creek	Luzerne	Pa.	41°16'	76°04'	1200	VC3*	Level	Bottom flat	0	Poor	Poor	4	baceous	Undisturbed
6	Pikes Creek	Luzerne	Pa.	41°18'	76°05'	1180	ID1*	South	Upland upper slope	3	Good	Good	2	Herbaceous	Cultivated (idle)
7	Dixon	Wyoming	Pa.	41°36'	75°51'	660	IIC1	South	Terrace slope	10	Good	Good	2	Hardwood forest	Undisturbed
8	Dixon	Wyoming	Pa.	41°36'	75°51'	660	IIC1	Level	Terrace flat	0	Poor	Poor	4	Herbaceous	Fallow
9	Dixon	Wyoming	Pa.	41°32'	75°55'	660	IIB1	Level	Terrace flat	0	Medium	Good	3	River birch and sycamore	Undisturbed
10	State College	Centre	Pa.	40°48'	77°50'	1175	IIB1	Level	Terrace flat	0	Medium	Good	3	Herbaceous	Grazed
11	State College	Centre	Pa.	40°48'	77°52'	1175	IVA1	Level	Upland flat	0	Medium	Medium	2	Red oak forest	Undisturbed
12	State College	Centre	Pa.	40°50'	77°52'	1175	IVA1	East	Upland ridge	0-3	Fair	Good	2	Herbaceous	Undisturbed
13	State College	Centre	Pa.	40°50'	77°52'	1175	IVA1	East	Upland ridge	0-3	Good	Good	2	Aspen saplings	Undisturbed
14	State College	Centre	Pa.	40°50'	77°51'	1175	IVA1	Southeast	Upland upper slope	10	Good	Good	2	Red pine forest	Undisturbed
15	State College	Centre	Pa.	40°50'	77°51'	1175	IVA1	Southeast	Upland upper slope	10	Good	Good	2	Young planted ash, herbaceous	Undisturbed
16	Huntingdon	Huntingdon	Pa.	40°32'	77°58'	660	IVA2	Level	Upland flat	0	Poor	Poor	4	Herbaceous with some trees	Undisturbed
17	Huntingdon	Huntingdon	Pa.	40°27'	78°05'	660	IIB1	Level	Bottom flat	0	Poor	Medium	3	Herbaceous	Fallow
18	Saxton	Bedford	Pa.	40°14'	78°17'	780	VC3	Level	Bottom depression	0	Poor	Medium	4	Herbaceous	Grazed
19	Saxton	Bedford	Pa.	40°15'	78°16'	780	IIB3	Level	Bottom flat	0	Poor	Poor	3	Herbaceous	Fallow
20	Saxton	Bedford	Pa.	40°15'	78°16'	780	IIB1	Level	Bottom flat	0	Poor	Medium	3	White and shortleaf pine forest	Undisturbed
21	Martinsburg	Blair	Pa.	40°18'	78°20'	1360	VF*	West	Terrace flat	3	Medium	Good	3	Herbaceous	Fallow
22	Martinsburg	Blair	Pa.	40°18'	78°20'	1360	IVA1	East	Upland upper slope	6	Good	Medium	2	Pine and spruce	Undisturbed
23	Martinsburg	Blair	Pa.	40°18'	78°20'	1360	IVA1	East	Upland upper slope	6	Good	Medium	2	Herbaceous	Hay
24	Strongstown	Indiana	Pa.	40°32'	78°53'	1760	IIB2	Level	Terrace flat	0	Medium	Good	2	Beech, red maple, and witch hazel	Undisturbed
25	Strongstown	Indiana	Pa.	40°32'	78°54'	1780	IVA5	West	Upland upper slope	6	Poor	Good	2	Herbaceous	Fallow
26	Strongstown	Indiana	Pa.	40°32'	78°54'	1780	IVA5	East	Upland upper slope	6	Poor	Good	2	Hardwood forest, thick brush understory	Undisturbed
27	Indiana	Indiana	Pa.	40°37'	79°07'	1360	VF*	West	Upland upper slope	10	Medium	Good	2	Herbaceous	Hay (plowed)
28	Indiana	Indiana	Pa.	40°37'	79°07'	1340	IIB1	Level	Bottom flat	0	Poor	Good	2	Herbaceous	Grazed
29	Indiana	Indiana	Pa.	40°37'	79°07'	1360	VF	Level	Upland depression	0	Poor	Medium	3	Herbaceous	Undisturbed
30	Indiana	Indiana	Pa.	40°37'	79°12'	1300	VF*	Level	Upland lower slope	0	Poor	Good	2	Herbaceous	Fallow
31	Whitesburg	Armstrong	Pa.	40°43'	79°22'	1240	VF	North	Upland lower slope	10	Good	Good	2	Herbaceous	Fallow
32	Whitesburg	Armstrong	Pa.	40°43'	79°23'	1060	VF*	Level	Upland lower slope	0	Poor	Good	2	Herbaceous	Fallow
33	Whitesburg	Armstrong	Pa.	40°43'	79°23'	1060	VF*	Level	Upland lower slope	0	Poor	Good	2	Crataegus and black cherry	Undisturbed
34	East Brady	Armstrong	Pa.	40°59'	79°38'	1040	IIB1*	Level	Bottom flat	0	Poor	Poor	4	Herbaceous	Undisturbed
35	East Brady	Armstrong	Pa.	41°00'	79°37'	900	IIC1*	Level	Terrace flat	0	Poor	Good	4	Herbaceous	Hay
36	Meadville	Meadville	Pa.	41°35'	80°09'	1065	IIC1*	West	Terrace slope	3	Poor	Medium	4	Herbaceous	Undisturbed
37	Meadville	Crawford	Pa.	41°36'	80°08'	1065	IIC1	Level	Terrace flat	0	Poor	Medium	3	Herbaceous	Grazed
38	Meadville	Crawford	Pa.	41°36'	80°08'	1065	IIC1	Level	Terrace flat	0	Poor	Medium	3	Elm trees, herbaceous	Grazed
39	Meadville	Crawford	Pa.	41°36'	80°08'	1065	ID2	West	Terrace slope	3	Good	Good	2	Herbaceous	Undisturbed
40	Meadville	Crawford	Pa.	41°43'	80°09'	1065	IIC1	Level	Terrace flat	0	Poor	Good	3	Herbaceous	Undisturbed
41	Meadville	Crawford	Pa.	41°45'	80°07'	1065	IID	South	Terrace slope	4	Medium	Good	2	Herbaceous	Undisturbed
42	Meadville	Crawford	Pa.	41°45'	80°07'	1065	IID	South	Terrace slope	0-4	Medium	Good	2	Crabapple, herbaceous	Undisturbed
43	Meadville	Crawford	Pa.	41°46'	80°07'	1065	ID2	East	Upland lower slope	5	Medium	Medium	2	Herbaceous	Fallow
44	Olean	Cattaraugus	N. Y.	42°05'	78°29'	1440	IIC1*	Level	Terrace flat	0	Poor	Good	3	Bracken fern	Undisturbed
45	Olean	Cattaraugus	N. Y.	42°05'	78°29'	1440	IIC1*	Level	Terrace flat	0	Poor	Good	2	Aspen saplings	Undisturbed
46	Salamanca	Cattaraugus	N. Y.	42°07'	78°39'	1400	IIB3*	Level	Bottom flat	0	Poor	Poor	4	Elm and soft maple, fern understory	Undisturbed
47	Salamanca	Cattaraugus	N. Y.	42°07'	78°39'	1400	ID1*	Level	Upland flat	0	Medium	Good	2	Herbaceous	Undisturbed
48	Salamanca	Cattaraugus	N. Y.	42°11'	78°41'	1400	IIB1	East	Terrace slope	0-3	Medium	Good	2	Herbaceous	Undisturbed
49	Lockport	Niagara	N. Y.	43°06'	78°42'	520	IC	Level	Upland flat	0	Poor	Poor	4	Tree seedlings, herbaceous	Fallow
50	Lockport	Niagara	N. Y.	43°07'	78°44'	520	IC	Level	Upland flat	0	Poor	Poor	4	Herbaceous	Fallow
52	Lockport	Niagara	N. Y.	43°13'	78°43'	520	IIB*	Level	Upland flat	0	Poor	Good	4	Herbaceous	Fallow
53	Wilson	Niagara	N. Y.	43°18'	78°48'	270	IC	Level	Upland flat	0	Medium	Poor	4	Herbaceous	Undisturbed
54	Wilson	Niagara	N. Y.	43°19'	78°48'	270	IC	Level	Upland flat	0	Poor	Poor	4	Herbaceous	Undisturbed
55	Wilson	Niagara	N. Y.	43°19'	78°48'	270	IC	Level	Upland flat	0	Poor	Poor	4	Herbaceous	Undisturbed
56	Barker	Niagara	N. Y.	43°22'	78°36'	280	IC*	Northeast	Upland lower slope	3-5	Good	Medium to poor	2	Herbaceous	Grazed

(Continued)

* Engineering Conference Land Form questionable.

Table B1 (Continued)

Site No.	Weather Station	County or Parish	State	Lat	Long.	El ft	Eng Conf Land Form	Topography: Aspect	Topography: Position	Topography: slope %	Drainage: Surface	Drainage: Internal	Wetness Index	Vegetation	Land Use
								Northeastern Region (Continued)							
57	Barker	Niagara	N. Y.	43°21'	78°36'	280	IC*	North	Upland flat	3-5	Good	Good	2	Herbaceous	Grazed
58	Barker	Niagara	N. Y.	43°21'	78°32'	280	IIIB*	North	Upland flat	3	Medium	Good	2	Herbaceous	Undisturbed
59	Batavia	Genessee	N. Y.	43°02'	78°13'	840	ID2	West	Upland flat	0-3	Medium	Medium	4	Herbaceous	Undisturbed
60	Batavia	Genessee	N. Y.	43°03'	78°11'	840	ID2	Southeast	Upland flat	0-3	Medium	Medium	4	Herbaceous	Hay
61	Batavia	Genessee	N. Y.	43°03'	78°11'	840	ID2	Level	Bottom flat	0	Poor	Poor to medium	4	Elm, brush understory	Undisturbed
62	Covington	Tioga	Pa.	41°47'	77°04'	1193	IIC1*	Level	Terrace flat	0	Poor	Good	2	Herbaceous with some trees	Undisturbed
63	Covington	Tioga	Pa.	41°46'	77°04'	1180	IIC1*	Level	Terrace flat	0	Poor	Good	2	Herbaceous	Fallow
64	Covington	Tioga	Pa.	41°45'	77°05'	1180	IIC1*	North	Terrace slope	2	Medium	Good	2	Shadbush and cherry trees	Undisturbed
65	Watsontown	Union	Pa.	41°02'	76°52'	470	IIB1	Level	Terrace flat	0	Good	Good	2	Herbaceous	Undisturbed
66	Watsontown	Union	Pa.	41°02'	76°52'	470	IIB1	East	Terrace flat	4	Good	Good	2	Silver maple, herbaceous understory	Undisturbed
67	Watsontown	Union	Pa.	41°03'	76°51'	470	IIC1	Level	Terrace flat	0	Poor	Poor	3	Herbaceous	Fallow
68	Watsontown	Union	Pa.	41°02'	76°51'	470	IIC1	East	Terrace slope	3	Medium	Medium	2	Herbaceous	Fallow
69	Millheim	Centre	Pa.	40°54'	77°29'	1090	IVA1	North	Upland upper slope	10	Good	Medium	2	Herbaceous	Undisturbed
70	Millheim	Centre	Pa.	40°54'	77°29'	1090	IVA1*	South	Terrace flat	2	Medium	Medium	2	Herbaceous	Hay
71	Brockport	Monroe	N. Y.	43°12'	77°57'	660	ID2	North	Upland upper slope	10	Good	Good	2	Herbaceous with some pear trees	Undisturbed
72	Brockport	Monroe	N. Y.	43°12'	77°57'	610	ID2	South	Upland flat	3	Good	Good	4	Herbaceous	Undisturbed
73	Brockport	Monroe	N. Y.	43°14'	77°56'	445	ID2*	South	Terrace Flat	2	Medium	Good	3	Herbaceous and forest	Idle
74	Hilton	Monroe	N. Y.	43°14'	77°52'	395	ID2	Level	Upland flat	0	Medium	Medium	4	Herbaceous	Fallow
75	Hilton	Monroe	N. Y.	43°19'	77°45'	260	ID2	Level	Upland flat	0	Medium	Medium	4	Herbaceous	Undisturbed
76	Hilton	Monroe	N. Y.	43°19'	77°47'	270	ID2	Level	Upland flat	0	Medium	Medium	4	Herbaceous	Undisturbed
77	Rochester	Monroe	N. Y.	43°08'	77°44'	555	IC*	Level	Terrace flat	0	Medium	Good	4	Herbaceous	Undisturbed
78	Rochester	Monroe	N. Y.	43°05'	77°44'	520	VC3*	Level	Bottom flat	0	Poor	Poor	4	Herbaceous	Undisturbed
79	Rochester	Monroe	N. Y.	43°05'	77°44'	525	IIC1*	Level	Bottom flat	0	Medium	Medium	4	Herbaceous	Undisturbed
80	Rochester	Monroe	N. Y.	43°05'	77°44'	525	IIC1*	Level	Upland flat	0	Medium	Medium	4	Elm and ash, herbaceous	Undisturbed
101	Danbury	Fairfield	Conn.	41°23'	73°28'	510	IIC1*	East	Terrace slope	5	Good	Good	2	Herbaceous	Fallow
102	Danbury	Fairfield	Conn.	41°23'	73°28'	510	VC3	Level	Bottom flat	0	Poor	Good	3	Herbaceous	Undisturbed
104	Mt. Carmel	New Haven	Conn.	41°25'	72°55'	200	ID2*	East	Upland lower slope	2	Medium	Good	2	Young ash, herbaceous understory	Undisturbed
105	Mt. Carmel	New Haven	Conn.	41°25'	72°55'	200	ID2*	West	Upland upper slope	5	Medium	Good	2	Herbaceous	Hay
106	Mt. Carmel	New Haven	Conn.	41°25'	72°55'	200	IIB1	Level	Bottom flat	0	Poor	Good	3	Herbaceous	Undisturbed
107	Mt. Carmel	New Haven	Conn.	41°25'	72°55'	200	IIB1	Level	Bottom flat	0	Poor	Good	3	Sassafras	Undisturbed
108	Hartford	Hartford	Conn.	41°46'	72°42'	140	IIC1	Level	Terrace flat	0	Poor	Poor	4	Herbaceous	Fallow
109	Hartford	Hartford	Conn.	41°46'	72°42'	140	ID2	East	Bottom flat	3	Good	Medium	4	Herbaceous	Hay
110	Hartford	Hartford	Conn.	41°46'	72°42'	140	IIC2*	West	Terrace slope	3	Good	Medium	3	Herbaceous	Fallow
111	Hartford	Hartford	Conn.	41°50'	72°44'	165	IIB1	Level	Bottom flat	0	Poor	Good	2	Herbaceous	Hay
112	Thompsonville	Hartford	Conn.	41°56'	72°41'	169	IIC1	Level	Terrace flat	0	Medium	Good	2	Mixed pine - hardwood	Undisturbed
113	Hartford	Hartford	Conn.	41°50'	72°44'	169	IIC1	Level	Terrace flat	0	Medium	Good	2	Mixed pine - hardwood	Undisturbed
114	Thomasville	Hartford	Conn.	41°56'	72°41'	169	IIC1	Level	Terrace flat	0	Good	Good	2	Herbaceous	Undisturbed
115	Thomasville	Hartford	Conn.	41°56'	72°41'	169	IIC1	Level	Terrace flat	0	Good	Good	2	Hardwood forest	Undisturbed
116	Thomasville	Tolland	Conn.	42°00'	72°36'	100	IIC1	West	Upland upper slope	3	Good	Good	2	Hardwood forest	Undisturbed
117	Thomasville	Tolland	Conn.	42°00'	72°36'	100	IIC1	West	Upland upper slope	3	Good	Good	2	Herbaceous	Hay
118	Stafford Springs	Tolland	Conn.	41°58'	72°18'	625	ID2	East	Upland upper slope	3	Good	Good	2	White pine	Undisturbed
119	Westfield	Hampden	Mass.	42°03'	72°46'	220	ID2	South	Upland lower slope	2	Good	Good	2	Herbaceous	Undisturbed
120	Westfield	Hampden	Mass.	42°03'	72°46'	200	ID1*	Level	Terrace flat	0	Good	Good	3	Herbaceous	Hay
121	Westfield	Hampden	Mass.	42°04'	72°46'	260	ID2	Level	Terrace flat	0	Poor	Good	2	Herbaceous	Undisturbed
122	Westfield	Hampden	Mass.	42°06'	73°46'	240	IIC1	Level	Terrace flat	0	Poor	Good	2	Mixed pine - hardwood	Undisturbed
123	Knightville	Hampshire	Mass.	42°15'	72°52'	560	IIC1	Level	Terrace flat	0	Poor	Good	2	Herbaceous	Undisturbed
124	Knightville	Hampshire	Mass.	42°17'	72°52'	500	IIC1*	Level	Terrace flat	0	Poor	Good	2	Herbaceous	Undisturbed
125	Chesterfield	Hampshire	Mass.	42°24'	72°52'	1180	ID2	South	Upland lower slope	5	Good	Good	3	Herbaceous	Undisturbed
126	Chesterfield	Hampshire	Mass.	42°24'	72°51'	1340	ID2	Level	Upland flat	0	Poor	Medium	4	Herbaceous	Cultivated (idle)
127	Chesterfield	Hampshire	Mass.	42°24'	72°51'	1380	ID2	South	Upland flat	3	Medium	Good	4	Herbaceous	Undisturbed
128	Amherst	Hampshire	Mass.	42°21'	72°34'	260	IIC1	Level	Bottom flat	0	Good	Medium	4	Herbaceous	Fallow
129	Amherst	Hampshire	Mass.	42°21'	72°33'	180	IIC1	Level	Bottom flat	0	Medium	Good	2	Herbaceous	Undisturbed
130	Amherst	Hampshire	Mass.	42°22'	72°32'	220	IIC1	Level	Bottom flat	0	Medium	Good	2	Elm, oak, and maple	Undisturbed
131	Montague City	Franklin	Mass.	42°33'	72°32'	280	IIC1*	Level	Terrace flat	0	Medium	Good	2	Sassafras	Undisturbed
132	Montague City	Franklin	Mass.	42°33'	72°32'	280	IIC1*	South	Upland lower slope	3	Good	Good	2	Herbaceous with some trees	Undisturbed
133	Montague City	Franklin	Mass.	42°34'	72°32'	280	ID2	West	Upland upper slope	5	Good	Good	1	Herbaceous	Undisturbed

(Continued)

* Engineering Conference Land Form questionable.

Table B1 (Continued)

Site No.	Weather Station	County or Parish	State	Lat	Long.	El ft	Eng Conf Land Form	Topography: Aspect	Topography: Position	Topography: Slope %	Drainage: Surface	Drainage: Internal	Wetness Index	Vegetation	Land Use
								Northeastern Region (Continued)							
134	Turners Falls	Franklin	Mass.	42°34'	72°32'	260	IIC1	Level	Terrace flat	0	Poor	Good	4	Herbaceous	Undisturbed
135	Turners Falls	Franklin	Mass.	42°34'	72°32'	280	IIC1	Level	Terrace flat	0	Medium	Good	2	Pine forest	Undisturbed
136	Turners Falls	Franklin	Mass.	42°34'	72°32'	280	IIC1	Level	Terrace flat	0	Medium	Good	2	Cherry and oak	Undisturbed
137	Milford	Hillsborough	N. H.	42°51'	71°40'	300	ID1*	Level	Terrace flat	0	Poor	Good	4	Herbaceous	Hay
138	Milford	Hillsborough	N. H.	42°51'	71°40'	300	ID1*	Southwest	Terrace slope	3	Good	Good	2	Herbaceous	Grazed
139	Milford	Hillsborough	N. H.	42°51'	71°40'	300	IIB1*	West	Bottom flat	2	Medium	Poor	4	Herbaceous	Hay
140	Newport	Sullivan	N. H.	43°18'	72°09'	1020	ID2*	West	Upland lower slope	3	Medium	Good	2	Herbaceous	Undisturbed
141	Newport	Sullivan	N. H.	43°20'	72°10'	920	ID5	Level	Upland flat	0	Poor	Good	4	Herbaceous	Undisturbed
142	Newport	Sullivan	N. H.	43°21'	72°10'	800	IIC1	Level	Terrace flat	0	Poor	Good	2	Herbaceous	Undisturbed
143	Claremont	Sullivan	N. H.	43°22'	72°19'	600	VF	Level	Upland flat	0	Poor	Poor	4	Hardwood forest	Undisturbed
144	Claremont	Sullivan	N. H.	43°27'	72°23'	360	IIC1	Level	Terrace flat	0	Poor	Good	2	Herbaceous	Playground
145	Claremont	Sullivan	N. H.	43°29'	72°23'	320	IIC1	Level	Bottom flat	0	Poor	Good	3	Herbaceous	Undisturbed
146	White River Junction	Windsor	Vt.	43°39'	72°21'	360	ID5	North	Upland lower slope	20	Good	Medium to good	4	Herbaceous	Undisturbed
147	White River Junction	Windsor	Vt.	43°39'	72°21'	360	ID5	Level	Upland flat	0	Poor	Medium	3	Pine, birch, and poplar	Undisturbed
148	Woodstock	Windsor	Vt.	43°37'	72°32'	800	VF	Level	Upland flat	0	Poor	Good	4	Herbaceous	Undisturbed
149	Woodstock	Windsor	Vt.	43°37'	72°32'	800	VF	Level	Upland flat	0	Poor	Poor	4	Young maple	Undisturbed
150	Woodstock	Windsor	Vt.	43°37'	72°33'	800	IID	North	Upland lower slope	5	Good	Medium	4	Herbaceous	Hay
151	Schuylerville	Saratoga	N. Y.	43°06'	73°35'	260	IC*	Level	Upland flat	0	Poor	Good	3	Herbaceous	Undisturbed
152	Schuylerville	Saratoga	N. Y.	43°06'	73°37'	240	IC*	Level	Upland flat	0	Poor	Medium	4	Post oak, herbaceous understory	Grazed
153	Schuylerville	Saratoga	N. Y.	43°06'	73°38'	200	IIC1*	East	Terrace slope	3	Good	Good	2	Small ash, brush, and herbaceous understory	Undisturbed
154	Schaghticoke	Rensselaer	N. Y.	42°55'	73°37'	300	IIC1	West	Terrace slope	5	Good	Good	2	Herbaceous	Undisturbed
155	Schaghticoke	Rensselaer	N. Y.	42°55'	73°37'	300	IIC1	Level	Terrace flat	0	Medium	Poor	2	Young elm	Undisturbed
156	Schaghticoke	Rensselaer	N. Y.	42°53'	73°36'	380	IC*	Level	Terrace flat	0	Poor	Poor	4	Elm and grey birch, brush understory	Undisturbed
158	Schenectady	Schenectady	N. Y.	42°52'	73°53'	420	IC2*	Level	Upland flat	0	Medium	Medium	2	Hardwood forest	Undisturbed
								Lake States Region							
1	Wausau	Marathon	Wis.	45°00'	89°30'	1220	ID2b*	North	Upland upper slope	4	Good	Good	2	Herbaceous	Hay
2	Wausau	Marathon	Wis.	45°00'	89°30'	1220	ID1*	East	Upland upper slope	12	Good	Good	2	Hardwood forest	Undisturbed
3	Stevens Point	Portage	Wis.	44°30'	89°30'	1079	IIB2*	Level	Terrace flat	0	Medium	Good	2	Jack and white pine	Undisturbed
4	Stevens Point	Portage	Wis.	44°30'	89°30'	1079	ID1*	Level	Bottom flat	0	Medium	Good	2	Herbaceous	Undisturbed
5	Stevens Point	Portage	Wis.	44°30'	89°30'	1079	ID2c*	West	Bottom flat	0-2	Medium	Good	2	Herbaceous	Hay
6	Hancock	Waushara	Wis.	44°15'	85°30'	1080	ID2c*	East	Upland flat	0-2	Medium	Good	2	Herbaceous	Undisturbed
7	Hancock	Waushara	Wis.	44°15'	89°30'	1080	ID2c*	East	Upland slope	2-4	Good	Good	2	Hardwood forest	Undisturbed
8	Hancock	Waushara	Wis.	44°15'	89°30'	1080	ID2G*	South	Upland slope	3-5	Medium	Good	2	Hardwood forest	Undisturbed
9	Hancock	Waushara	Wis.	44°15'	89°30'	1080	ID1*	Level	Upland flat	0	Medium to good	Good	2	herbaceous	Grazed
10	Arlington	Columbia	Wis.	43°15'	89°30'	1040	ID2c*	North	Upland slope	12	Good	Good	2	Herbaceous	Grazed
11	Arlington	Columbia	Wis.	43°15'	89°30'	1040	ID2b*	South	Upland upper slope	15	Good	Medium	2	Herbaceous	Hay
12	Arlington	Columbia	Wis.	43°15'	89°30'	1040	ID2c*	South	Upland slope	20	Good	Good	2	Hardwood forest	Undisturbed
13	Arlington	Columbia	Wis.	44°15'	89°30'	1040	ID2c*	South	Upland slope	5-7	Good	Good	2	Herbaceous	Hay
14	Arlington	Columbia	Wis.	44°15'	89°30'	1040	ID2b*	East	Upland flat	2	Good	Medium	2	Herbaceous	Hay
15	Stroughton	Dane	Wis.	43°00'	89°15'	900	ID2c*	East	Upland slope	3-4	Good	Good	2	Herbaceous	Undisturbed
16	Stroughton	Dane	Wis.	43°00'	89°15'	900	ID2b*	Level	Upland upper flat	0	Medium	Medium	2	Herbaceous	Hay
17	Stroughton	Dane	Wis.	43°00'	89°15'	900	ID1*	North	Upland upper slope	4-5	Good	Good	2	Herbaceous	Grazed
18	Rockford	Winnebago	Ill.	42°30'	89°00'	750	ID1*	South	Terrace flat	0-1	Good	Medium	2	Barley and winegrass	Cultivated
19	Rockford	Winnebago	Ill.	42°30'	89°00'	750	IIC1*	Level	Terrace flat	0	Good	Good	2	Herbaceous	Lawn
20	Rockford	Winnebago	Ill.	42°30'	89°00'	750	ID2a*	West	Upland slope	5-7	Good	Good	2	Herbaceous	Undisturbed
22	Rockford	Winnebago	Ill.	42°30'	89°00'	750	IIIA1*	North	Upland upper flat	2-3	Good	Good	2	Herbaceous	Undisturbed
23	Rochelle	Ogle	Ill.	42°00'	89°00'	800	IIIA1*	South	Upland upper slope	3-5	Good	Good to medium	2	Herbaceous	Hay
24	Rochelle	Ogle	Ill.	42°00'	89°00'	800	IIIA2*	Level	Upland upper flat	0	Medium	Poor	2	Herbaceous	Undisturbed
25	Paw Paw	Lee	Ill.	41°45'	89°00'	950	IIIA2*	Northeast	Upland upper flat	0-2	Medium	Good to medium	2	Herbaceous	Undisturbed

(Continued)

* Engineering Conference Land Form questionable.

Table B1 (Continued)

Site No.	Weather Station	County or Parish	State	Lat	Long.	El ft	Eng Conf Land Form	Topography: Aspect	Topography: Position	Topography: Slope %	Drainage: Surface	Drainage: Internal	Wetness Index	Vegetation	Land Use
								Lake States Region (Continued)							
26	Paw Paw	Lee	Ill.	41°45'	89°00'	930	IIIA2*	Southeast	Upland upper flat	2-3	Good	Good	3	Herbaceous	Hay
27	Princeton	Bureau	Ill.	41°30'	89°30'	700	IIB1*	Level	Terrace flat	0	Medium	Good	3	Herbaceous	Undisturbed
28	Geneseo	Henry	Ill.	41°30'	90°15'	639	IIIA2*	Level	Upland upper flat	0	Good	Good	3	Herbaceous	Hay
29	Geneseo	Henry	Ill.	41°30'	90°15'	639	IIIA2*	South	Bottomland flat	0-2	Medium	Medium	2	Herbaceous	Undisturbed
30	Geneseo	Henry	Ill.	41°30'	90°15'	639	IIIB*	South	Upland upper slope	5-8	Good	Good	2	Herbaceous	Undisturbed
31	Maquoketa	Jackson	Iowa	42°15'	90°30'	600	IIIA1*	Northwest	Upland upper slope	5-6	Good	Good	2	Herbaceous	Undisturbed
34	Maquoketa	Jackson	Iowa	42°15'	90°30'	600	IIIA1*	South	Upland ridge	5-8	Good	Good	2	Herbaceous	Hay
35	Bellevue	Jackson	Iowa	42°30'	90°30'	603	IIB2*	Level	Terrace flat	0	Medium	Medium	3	Herbaceous	Grazed
36	Bellevue	Jackson	Iowa	42°30'	90°30'	603	IIC1*	East	Terrace flat	0-2	Medium	Good	2	Herbaceous	Hay
37	Bellevue	Jackson	Iowa	42°30'	90°30'	603	IIIA1*	East	Terrace flat	1-3	Medium	Poor	4	Herbaceous	Cultivated (grazed)
38	Lancaster	Grant	Wis.	42°45'	90°45'	1080	IIIA2*	East	Upland upper slope	0-5	Good	Medium	2	Herbaceous	Undisturbed
39	Lancaster	Grant	Wis.	42°45'	90°45'	1080	IIIA1*	Southwest	Upland ridge	10-12	Good	Poor	2	Herbaceous	Grazed
40	Lancaster	Grant	Wis.	42°45'	90°45'	1080	IIIA1*	West	Upland upper slope	2-5	Good	Medium	2	Herbaceous	Undisturbed
41	Viroqua	Vernon	Wis.	43°30'	91°00'	1281	IIIA1*	West	Upland upper slope	5-10	Good	Medium to good	2	Herbaceous	Hay
42	Viroqua	Vernon	Wis.	43°30'	91°00'	1281	IIIA1*	South	Upland ridge	3-4	Good	Medium to good	2	Herbaceous	Undisturbed
43	Viroqua	Vernon	Wis.	43°30'	91°00'	1281	IIIA1*	West	Upland upper slope	5-8	Good	Medium	2	Herbaceous	Grazed
44	Black River	Jackson	Wis.	44°15'	90°45'	810	IVA3*	Level	Upland flat	0	Medium	Good	2	Hardwood forest	Undisturbed
45	Black River	Jackson	Wis.	44°15'	90°45'	810	IVA3*	South	Terrace flat	2-3	Good	Good	2	Hardwood forest	Undisturbed
46	Black River	Jackson	Wis.	44°15'	90°45'	810	IIIA1*	North	Upland ridge	15-20	Good	Good	2	Herbaceous	Grazed
47	Black River	Jackson	Wis.	44°15'	90°45'	810	IVA3*	South	Upland lower slope	3-5	Good	Good	2	Herbaceous	Cultivated
48	Fairchild	Jackson	Wis.	44°30'	91°00'	1080	IVA3*	East	Upland lower slope	3-5	Good	Good	2	Herbaceous	Grazed
49	Fairchild	Jackson	Wis.	44°30'	91°00'	1080	IVA2*	South	Upland ridge	2-3	Good	Medium to poor	3	Herbaceous	Cultivated
50	Fairchild	Jackson	Wis.	44°30'	91°00'	1080	IIIA1*	South	Upland ridge	5	Good	Good	2	Herbaceous	Undisturbed
51	Colby	Marathon	Wis.	45°00'	90°15'	1325	IID2b*	East	Upland upper slope	5-8	Good	Poor	2	Herbaceous	Hay
52	Colby	Marathon	Wis.	45°00'	90°15'	1325	IID2b*	West	Bottomland flat	2-3	Medium	Poor	4	Herbaceous	Undisturbed
53	Prentice	Price	Wis.	45°30'	90°15'	1635	IID2b*	East	Upland ridge	5-6	Good	Good	3	Herbaceous	Grazed
54	Prentice	Price	Wis.	45°30'	90°15'	1635	IID2b*	East	Upland upper slope	10-14	Good	Good	2	Hardwood forest	Undisturbed
55	Prentice	Price	Wis.	45°30'	90°15'	1635	IID2b*	South	Upland flat	0-2	Medium	Medium	3	Herbaceous	Grazed
56	Marshfield	Wood	Wis.	44°45'	90°15'	1250	IID2b*	South	Upland upper slope	15	Good	Medium	2	Herbaceous	Hay
58	Caledonia	Houston	Minn.	43°45'	91°30'	1178	IIIA1*	Southwest	Upland ridge	10-12	Good	Good	2	Herbaceous	Grazed
59	Caledonia	Houston	Minn.	43°45'	91°30'	1178	IIIA1*	North	Upland upper slope	3-4	Good	Medium to good	3	Herbaceous	Undisturbed
60	Caledonia	Houston	Minn.	43°45'	91°30'	1178	IIIA1*	South	Upland lower slope	2-3	Medium	Medium	2	Herbaceous	Grazed
61	Oelwein	Fayette	Iowa	42°45'	91°45'	965	IIC1*	North	Terrace flat	2-3	Medium	Good	2	Herbaceous	Undisturbed
62	Oelwein	Fayette	Iowa	42°45'	91°45'	965	IID2a*	North	Upland upper slope	5-6	Good	Good to medium	2	Herbaceous	Cultivated
63	Oelwein	Fayette	Iowa	42°45'	91°45'	965	IID1*	North	Terrace flat	2-3	Medium	Good	2	Herbaceous	Hay
64	Independence	Buchanan	Iowa	42°30'	91°45'	956	IIB1*	Level	Bottom flat	0	Poor	Poor	4	Herbaceous	Grazed
66	Independence	Buchanan	Iowa	42°30'	91°45'	956	IIIA2*	North	Upland upper slope	5-6	Good	Medium	4	Herbaceous	Undisturbed
67	Vinton	Benton	Iowa	42°15'	92°00'	815	IID2a*	South	Upland ridge	3-5	Good	Good	2	Herbaceous	Lawn
68	Vinton	Benton	Iowa	42°15'	92°00'	815	IID2a*	North	Upland lower slope	5-8	Good	Good	2	Herbaceous	Grazed
69	Vinton	Benton	Iowa	42°15'	92°00'	815	IIIA1*	East	Upland ridge	8-10	Good	Good	2	Forest and herbaceous	Undisturbed
70	Vinton	Benton	Iowa	42°15'	92°00'	815	IIIA1*	South	Upland ridge	10-12	Good	Medium	2	Herbaceous	Hay
71	Traer	Tama	Iowa	42°15'	92°30'	947	IIIA2*	Level	Upland upper flat	0	Medium	Good to medium	2	Herbaceous	Hay
72	Traer	Tama	Iowa	42°15'	92°30'	947	IIIA2*	Level	Upland upper flat	0	Medium to poor	Medium	2	Herbaceous	Grazed
73	Traer	Tama	Iowa	42°15'	92°30'	947	IIB1*	North	Bottomland flat	3	Medium to good	Medium	2	Herbaceous	Undisturbed
74	Traer	Tama	Iowa	42°15'	92°30'	947	IID2a*	East	Upland lower slope	8-10	Good	Good	2	Herbaceous	Grazed
75	Newton	Jasper	Iowa	41°45'	93°00'	973	IIIA2*	Level	Upland flat	0	Medium	Medium to good	2	Herbaceous	Undisturbed
76	Newton	Jasper	Iowa	41°45'	93°00'	973	IIB2*	Level	Bottomland flat	0	Medium	Medium to poor	2	Herbaceous	Undisturbed

(Continued)

* Engineering Conference Land Form questionable.

Table B1 (Continued)

Site No.	Weather Station	County or Parish	State	Lat	Long.	El ft	Eng Conf Land Form	Topography: Aspect	Topography: Position	Topography: Slope %	Drainage: Surface	Drainage: Internal	Wetness Index	Vegetation	Land Use
								Lake States Region (Continued)							
77	Indianola	Warren	Iowa	41°30'	93°30'	972	IDe2a*	West	Bottomland terrace slope	8-10	Good	Poor	2	Herbaceous	Undisturbed
78	Indianola	Warren	Iowa	41°30'	93°30'	972	IIIA2*	North	Upland ridge	2-3	Medium	Good	2	Herbaceous	Hay
79	Winterset	Madison	Iowa	41°15'	94°00'	1100	IIIA2*	East	Upland upper flat	0-3	Medium	Good to medium	2	Herbaceous	Lawn
80	Winterset	Madison	Iowa	41°15'	94°00'	1100	IDe2a*	West	Upland upper slope	25-30	Good	Medium	2	Herbaceous with some trees	Grazed
81	Winterset	Madison	Iowa	41°15'	94°00'	1100	IIIA2*	Level	Upland upper flat	0	Medium	Good	2	Herbaceous with some trees	Lawn
82	Greenfield	Adair	Iowa	41°15'	94°30'	1300	IIIA2*	West	Upland upper flat	2-3	Good	Poor	2	Herbaceous	Undisturbed
83	Greenfield	Adair	Iowa	41°15'	94°30'	1300	IDe2a*	West	Upland lower slope	0-3	Medium	Medium	2	Herbaceous	Grazed
84	Greenfield	Adair	Iowa	41°15'	94°30'	1300	IIB1*	Level	Terrace flat	0	Poor	Good	2	Herbaceous	Undisturbed
85	Atlantic	Cass	Iowa	41°30'	95°00'	1155	IIB1*	Level	Bottomland flat	0	Poor	Medium	4	Herbaceous	Undisturbed
86	Atlantic	Cass	Iowa	41°30'	95°00'	1155	IDe2a*	North	Upland ridge	5-6	Good	Poor	2	Herbaceous	Undisturbed
87	Audubon	Audubon	Iowa	41°48'	95°00'	1300	IIIA2*	South	Upland upper slope	10-12	Good	Good	2	Herbaceous	Grazed
88	Audubon	Audubon	Iowa	41°45'	95°00'	1300	IIB1*	Level	Bottom flat	0	Poor	Medium	2	Herbaceous	Undisturbed
89	Audubon	Audubon	Iowa	41°45'	95°00'	1300	IIIA2*	Southeast	Upland upper slope	10-12	Good	Good	2	Herbaceous	Grazed
90	Jefferson	Greene	Iowa	42°00'	94°15'	1055	IDe2a*	West	Upland lower slope	40	Good	Good to medium	2	Herbaceous with some trees	Grazed
91	Jefferson	Greene	Iowa	42°00'	44°15'	1055	IDe1*	South	Upland lower slope	10-14	Good	Good	2	Herbaceous with some trees	Grazed
92	Jefferson	Greene	Iowa	42°00'	44°15'	1055	IDe2b*	South	Upland depression	3-4	Poor	Poor	3	Herbaceous	Grazed
93	Ft. Dodge	Webster	Iowa	42°30'	94°15'	1111	IDe2b*	West	Upland lower slope	2-3	Medium	Poor	3	Herbaceous	Grazed
94	Ft. Dodge	Webster	Iowa	42°30'	94°15'	1111	IDe2b*	Level	Upland flat	0	Medium	Medium	3	Herbaceous	Hay
95	Dakota City	Humboldt	Iowa	42°45'	94°15'	1133	IDe2c*	East	Upland ridge	3-5	Good	Medium	3	Herbaceous with some trees	Grazed
96	Dakota City	Humboldt	Iowa	42°45'	94°15'	1133	IDe2c*	North	Upland flat	2-3	Medium	Good	2	Herbaceous	Hay
97	Algona	Kossuth	Iowa	43°00'	94°15'	1200	IDe2c*	North	Upland flat	2-3	Poor	Good	2	Herbaceous	Grazed
98	Algona	Kossuth	Iowa	43°00'	94°15'	1200	IDe2c*	Level	Upland lower slope	0	Medium	Medium	3	Herbaceous	Hay
99	Forest City	Winnebago	Iowa	43°15'	93°30'	1284	IIB1*	Level	Bottom flat	0	Poor	Medium	3	Herbaceous with some trees	Grazed
102	Albert Lea	Freeborn	Minn.	43°45'	93°30'	1229	IDe2b*	North	Upland ridge	8-10	Good	Good	2	Herbaceous	Hay
103	Albert Lea	Freeborn	Minn.	43°45'	93°30'	1229	IDe2c*	West	Upland upper slope	8-10	Good	Good	2	Hardwood forest	Undisturbed
104	Waseca	Waseca	Minn.	44°00'	93°30'	1153	IDe2c*	North	Upland upper slope	3-4	Good	Poor	2	Herbaceous	Grazed
105	Waseca	Waseca	Minn.	44°00'	93°30'	1153	IDe2b*	West	Bottom flat	2-3	Poor	Medium	2	Herbaceous	Grazed
106	Farmington	Dakota	Minn.	44°45'	93°00'	902	IDe2c*	South	Upland ridge	8-10	Good	Good	2	Herbaceous	Undisturbed
107	Farmington	Dakota	Minn.	44°45'	93°00'	902	IDe2c*	Level	Bottom depression	0	Poor	Medium	3	Herbaceous	Undisturbed
108	Baldwin	St. Croix	Wis.	44°00'	92°15'	1140	IDe2c*	East	Upland upper slope	10-15	Good	Good	2	Herbaceous	Hay
109	Baldwin	St. Croix	Wis.	45°00'	92°15'	1140	IDe2b*	Southwest	Upland flat	0-2	Medium	Medium	3	Herbaceous	Undisturbed
110	Baldwin	St. Croix	Wis.	45°15'	92°15'	1140	IDe2*	South	Upland ridge	2-5	Medium	Medium	2	Herbaceous	Hay
111	Baldwin	St. Croix	Wis.	45°15'	92°15'	1140	IDe2a*	North	Upland upper slope	2	Medium	Good	2	Hardwood forest	Undisturbed
112	Amery	Polk	Wis.	45°15'	92°15'	1000	IDe2a*	West	Upland ridge	6	Good	Medium	2	Herbaceous with some trees	Grazed
113	Amery	Polk	Wis.	44°15'	92°15'	1000	IDe2c*	North	Upland upper flat	2	Good	Medium	2	Herbaceous	Hay
114	Weyerhouser	Rusk	Wis.	45°30'	91°30'	1210	IDe2b*	West	Upland upper slope	3-5	Good	Medium	2	Herbaceous	Undisturbed
115	Weyerhouser	Rusk	Wis.	45°30'	91°30'	1210	IDe2c*	West	Upland upper slope	5-6	Good	Medium to poor	2	Aspen and hazel brush cover	Undisturbed
116	Ladysmith	Rusk	Wis.	45°30'	91°00'	1160	IDe2c*	Level	Upland upper flat	0	Good	Good	2	Herbaceous	Grazed
117	Ladysmith	Rusk	Wis.	45°30'	91°00'	1160	IDe2b*	South	Upland upper flat	3-4	Good	Medium	2	Aspen with herbaceous cover	Undisturbed
118	Minocqua	Oneida	Wis.	45°45'	89°45'	1589	IDe2c*	Level	Upland ridge	0	Poor	Good	2	Jack pine and birch, bracken fern understory	Undisturbed
119	Minocqua	Oneida	Wis.	45°45'	89°45'	1589	IDe2c*	Level	Upland ridge	0	Good	Good	2	Maple, aspen, and white pine, herbaceous understory	Undisturbed
120	Minocqua	Oneida	Wis.	45°45'	89°45'	1589	IDe2c*	Level	Upland ridge	0	Medium	Good	2	Scattered jack pine and alder, herbaceous understory	Undisturbed
121	Park Falls	Price	Wis.	46°00'	90°30'	1492	IDe2c*	Level	Bottom flat	0	Medium	Good	2	Tall hemlock, maple and alder underbrush, herbaceous	Undisturbed
122	Park Falls	Price	Wis.	46°00'	90°30'	1492	IDe2c*	South	Upland upper slope	3-5	Good	Medium	2	Herbaceous	Grazed
123	Mellen	Ashland	Wis.	46°15'	90°45'	1150	IDe2c*	South	Upland lower slope	7-10	Good	Medium	4	Black ash, sugar maple and aspen	Undisturbed
124	Ashland	Bayfield	Wis.	46°30'	90°45'	650	IC*	South	Upland upper slope	3-5	Good	Poor	4	Herbaceous	Hay
125	Ashland	Bayfield	Wis.	46°30'	90°45'	650	IC*	Level	Bottom depression	0	Poor	Poor	4	Herbaceous	Grazed
126	Grand Rapids	Aitkin	Minn.	47°00'	93°30'	1281	IDe2b*	Level	Bottom flat	0	Poor	Poor	2	Aspen and dense brush understory	Undisturbed
127	Grand Rapids	Aitkin	Minn.	47°00'	93°30'	1281	IDe2b*	West	Upland upper slope	5-7	Good	Medium	2	Hardwood forest	Undisturbed
128	Remer	Cass	Minn.	47°00'	94°00'	1343	IDe2b*	East	Bottomland	3-5	Good	Poor	4	Hardwood forest	Undisturbed

(Continued)

* Engineering Conference Land Form questionable.

Table B1 (Continued)

Site No.	Weather Station	County or Parish	State	Lat	Long.	El ft	Eng Conf Land Form	Topography: Aspect	Topography: Position	Topography: Slope %	Drainage: Surface	Drainage: Internal	Wetness Index	Vegetation	Land Use
								Lake States Region (Continued)							
129	Remer	Cass	Minn.	47°00'	94°00'	1343	ID2b*	West	Upland upper slope	10-15	Good	Medium	2	Hardwood forest	Undisturbed
130	Park Rapids	Hubbard	Minn.	47°00'	95°00'	1426	ID1*	West	Upland upper slope	2-3	Good	Good	2	Herbaceous	Grazed
131	Park Rapids	Hubbard	Minn.	47°00'	95°00'	1426	ID1*	North	Upland upper slope	6-8	Good	Good	2	Herbaceous	Grazed
132	Park Rapids	Hubbard	Minn.	47°00'	95°00'	1426	ID1*	West	Upland upper slope	5-6	Good	Good	2	Pine forest	Undisturbed
133	Park Rapids	Hubbard	Minn.	47°00'	95°00'	1426	ID2c*	West	Upland upper slope	3-4	Good	Good	2	Herbaceous	Undisturbed
134	Park Rapids	Hubbard	Minn.	47°00'	95°00'	1426	ID2c*	West	Upland upper slope	5-6	Good	Good	2	Herbaceous	Undisturbed
135	Detroit Lakes	Becker	Minn.	46°45'	95°45'	1375	IC*	West	Bottomland	3-4	Medium	Medium to poor	4	Herbaceous	Grazed
136	Detroit Lakes	Becker	Minn.	46°45'	95°45'	1375	ID2c*	North	Upland upper slope	10-12	Good	Good	2	Hardwood forest, herbaceous understory	Undisturbed
137	Fergus Falls	Ottertail	Minn.	46°15'	96°00'	1210	ID2c*	West	Upland lower slope	10-12	Good	Medium	2	Herbaceous	Hay
138	Fergus Falls	Ottertail	Minn.	46°15'	96°00'	1210	ID2c*	West	Upland upper slope	20-25	Good	Medium	2	Herbaceous	Grazed
139	Campbell	Wilkin	Minn.	46°00'	96°30'	975	IC*	Level	Bottomland	0	Poor	Medium to poor	2	Flax	Cultivated
140	Campbell	Wilkin	Minn.	46°00'	96°30'	975	IC*	Level	Bottomland	0	Poor	Medium	3	Flax	Cultivated
142	Campbell	Wilkin	Minn.	46°00'	96°30'	975	IC*	West	Bottomland	0-	Medium	Poor	3	Herbaceous	Undisturbed
143	Herman	Grant	Minn.	45°45'	96°15'	1078	IC*	North	Bottomland	0-	Poor	Poor	3	Herbaceous	Hay
144	Herman	Grant	Minn.	45°45'	96°15'	1078	IC*	Level	Bottomland	0	Poor	Poor	3	Flax	Cultivated
146	Morris	Stevens	Minn.	45°30'	96°00'	1170	IC*	Level	Bottom depression	0	Poor	Medium	3	Herbaceous	Undisturbed
147	Morris	Stevens	Minn.	45°30'	96°00'	1170	IC*	West	Terrace slope	10	Good	Good	2	Herbaceous	Grazed
148	Morris	Stevens	Minn.	45°30'	96°00'	1170	IC*	East	Upland upper slope	2-3	Medium	Medium to good	2	Flax	Cultivated
149	Benson	Swift	Minn.	45°15'	95°30'	1040	IC*	Level	Bottomland	0	Poor	Good	2	Herbaceous	Undisturbed
150	Benson	Swift	Minn.	45°15'	95°30'	1040	IC*	East	Upland upper flat	0-3	Medium	Good	2	Herbaceous	Grazed
151	New London	Kandiyohi	Minn.	45°15'	95°00'	1215	ID2c*	South	Upland upper slope	5-8	Good	Good	2	Herbaceous	Hay
152	New London	Kandiyohi	Minn.	45°15'	95°00'	1215	ID2c*	East	Upland lower slope	10-15	Good	Good	2	Herbaceous	Grazed
153	St. Cloud	Stearns	Minn.	45°30'	94°15'	1034	ID2c*	Level	Upland upper flat	0	Medium	Medium	2	Herbaceous	Undisturbed
154	St. Cloud	Benton	Minn.	45°30'	94°15'	1034	ID2c*	Level	Upland upper flat	0	Poor	Good	2	Herbaceous	Undisturbed
155	Milaca	Mille Lacs	Minn.	45°45'	93°45'	1072	ID2b*	Level	Terrace flat	0	Poor	Poor	4	Herbaceous	Grazed
156	Milaca	Mille Lacs	Minn.	45°45'	93°45'	1072	ID2b*	North	Upland upper slope	3-5	Good	Poor	3	Herbaceous	Undisturbed
157	Milaca	Mille Lacs	Minn.	45°45'	93°45'	1072	ID2c*	East	Bottom depression	2-3	Poor	Poor	4	Herbaceous	Grazed
158	Mora	Kanabec	Minn.	45°45'	93°15'	1001	ID1*	West	Terrace flat	2-3	Good	Medium	2	Herbaceous	Hay
159	Mora	Kanabec	Minn.	45°45'	93°15'	1001	ID2b*	West	Upland upper slope	10-14	Good	Good	2	Herbaceous	Grazed
160	Mora	Kanabec	Minn.	44°45'	93°15'	1001	ID2c*	West	Upland upper slope	2-4	Good	Good	2	Herbaceous	Grazed
161	Hinckley	Pine	Minn.	46°00'	93°00'	1035	ID2b*	North	Upland upper slope	10-12	Good	Medium	2	Birch with herbaceous understory	Undisturbed
162	Hinckley	Pine	Minn.	46°00'	93°00'	1035	ID2c*	Level	Bottom depression	0	Poor	Poor	4	Herbaceous	Grazed
163	Hinckley	Pine	Minn.	46°00'	93°00'	1035	ID2b*	South	Upland upper slope	4-6	Good	Poor	2	Herbaceous	Grazed
164	Hinkley	Pine	Minn.	46°00'	93°00'	1035	ID2b*	Level	Upland upper flat	0	Good	Good	2	Herbaceous	Undisturbed
165	Danbury, Wis.	Pine	Minn.	46°00'	92°15'	900	ID2c*	North	Upland upper slope	5-8	Good	Good	2	Aspen, oak, paper birch, maple, and alder	Undisturbed
166	Danbury, Wis.	Pine	Minn.	46°00'	92°15'	900	ID2c*	West	Upland upper slope	3-5	Good	Good	2	Herbaceous	Hay
167	Danbury, Wis.	Pine	Minn.	46°00'	92°15'	900	ID2c*	North	Upland upper slope	3-5	Poor	Poor	2	Aspen, birch, cherry, and alder brush	Undisturbed
168	Minong	Washburn	Wis.	46°00'	91°45'	1080	ID2c*	Southeast	Upland flat	3	Good	Good	2	Herbaceous	Grazed
169	Minong	Washburn	Wis.	46°00'	91°45'	1080	ID2c*	West	Upland upper slope	3-5	Good	Good	2	Herbaceous, brush	Undisturbed
170	Minong	Washburn	Wis.	46°00'	91°45'	1080	ID2b*	West	Upland upper slope	3-5	Good	Medium	2	Hardwood forest	Undisturbed
								Intermountain Region							
1	Farmington	Davis	Utah	40°53'	111°51'	7100	IVB2*	Southeast	Upland lower slope	5	Good	Good	2	Aspen, herbaceous understory	Undisturbed (experimental forest)
2	Farmington	Davis	Utah	40°55'	111°50'	8400	IVB2*	South	Upland ridge	1-10	Good	Good	2	Herbaceous	Undisturbed (experimental plot)
3	Farmington	Davis	Utah	40°59'	111°50'	6950	IIC1*	North	Terrace slope	3	Good	Good	2	Herbaceous	Undisturbed (experimental forest)
4	Farmington	Davis	Utah	40°57'	111°49'	7600	IVB2*	North	Upland flat	1	Good	Good	4	Herbaceous	Undisturbed (experimental plot)

(Continued)

* Engineering Conference Land Form questionable.

Table B1 (Continued)

Site No.	Weather Station	County or Parish	State	Lat	Long.	El ft	Eng Conf Land Form	Topography: Aspect	Topography: Position	Topography: Slope %	Drainage: Surface	Drainage: Internal	Wetness Index	Vegetation	Land Use
								Intermountain Region (Continued)							
5	Farmington	Davis	Utah	40°59'	111°56'	4150	IIC1*	Level	Bottom flat	0	Poor	Poor	4	Herbaceous	Grazed
6	Farmington	Davis	Utah	41°00'	111°56'	4180	IIC2*	South	Terrace flat	1	Poor	Medium to good	3	Herbaceous	Grazed
7	Farmington	Davis	Utah	41°01'	111°57'	4400	IIC1*	Southeast	Terrace slope	4	Good	Good	2	Herbaceous	Grazed
8	Salt Lake Airport	Salt Lake	Utah	40°46'	111°58'	4200	IIC2*	Northwest	Terrace flat	1	Good	Medium	2	Herbaceous	Grazed
9	Salt Lake Airport	Salt Lake	Utah	40°46'	112°00'	4215	II I*	Level	Bottom flat	0	Poor	Poor	4	Bare	Undisturbed
10	Salt Lake Airport	Salt Lake	Utah	40°46'	112°01'	4190	IIC2*	Level	Terrace flat	0	Poor	Poor	1	Herbaceous	Grazed
11	Salt Lake	Salt Lake	Utah	40°42'	111°55'	4200	IIC1*	Level	Terrace flat	0	Poor	Poor	3	Herbaceous	Grazed
12	Salt Lake	Salt Lake	Utah	40°41'	111°58'	4210	IIC2*	West	Terrace flat	1	Medium to good	Medium	2	Herbaceous	Undisturbed
13	Salt Lake	Salt Lake	Utah	40°43'	111°58'	4210	IIC1*	Level	Terrace flat	0	Poor to medium	Medium to good	2	Herbaceous	Grazed
14	Magna	Salt Lake	Utah	40°43'	112°01'	4200	IIC2*	East	Terrace flat	1	Medium	Poor	3	Herbaceous	Ball field
15	Magna	Salt Lake	Utah	40°43'	112°04'	4200	IIC2*	West	Terrace flat	1-2	Medium	Medium to good	4	Herbaceous	Grazed
16	Spanish Fork	Utah	Utah	40°09'	111°40'	4600	IIC2*	Southeast	Terrace flat	1	Good	Medium	2	Herbaceous	Hay
17	Spanish Fork	Utah	Utah	40°06'	111°38'	4680	IIC2*	Northeast	Terrace flat	1	Good	Medium	2	Herbaceous	Undisturbed
18	Provo	Utah	Utah	40°14'	111°43'	4480	IIC2*	Northwest	Terrace flat	1	Medium	Medium to good	2	Herbaceous	Hay
19	Provo	Utah	Utah	40°14'	111°42'	4520	IIC2*	West	Terrace flat	1	Medium	Poor	3	Herbaceous	Grazed
20	Provo	Utah	Utah	40°13'	111°40'	4500	IIC2*	Southeast	Terrace flat	1	Medium	Medium	3	Herbaceous	Grazed
21	Spanish Fork	Utah	Utah	40°08'	111°41'	4600	IIC2*	South	Terrace flat	1	Medium	Poor	4	Herbaceous	Grazed
22	Logan	Cache	Utah	41°44'	111°52'	4600	IIG*	West	Bottom flat	1	Medium to poor	Poor	4	Herbaceous	Grazed
23	Logan	Cache	Utah	41°47'	111°50'	4600	IIG*	West	Bottom flat	1	Medium	Medium	4	Herbaceous	Grazed
24	Logan	Cache	Utah	41°42'	111°51'	4600	IIG*	Northwest	Bottom flat	1	Medium	Poor	4	Herbaceous	Hay
25	Conda	Caribou	Idaho	42°44'	111°33'	6200	VB*	West	Upland flat	0-8	Medium	Medium	2	Herbaceous	Grazed
26	Conda	Caribou	Idaho	42°47'	111°33'	6200	VB*	East	Upland depression	1	Medium to good	Good	3	Herbaceous	Grazed
27	Conda	Caribou	Idaho	42°46'	111°34'	6200	IIIA2*	West	Upland flat	1	Good	Good	?	Herbaceous	Cultivated
28	Conda	Caribou	Idaho	42°45'	111°34'	6200	IIIA2*	East	Upland flat	3	Medium to good	Good	2	Wheat	Undisturbed
29	Bancroft	Caribou	Idaho	42°42'	111°49'	5460	IIIA1*	South	Upland upper slope	2	Good	Good	2	Wheat	Cultivated
30	Bancroft	Caribou	Idaho	42°42'	111°49'	5450	IIIA2*	East	Upland lower slope	3	Good	Good	2	Wheat	Cultivated
31	Bancroft	Caribou	Idaho	42°44'	111°56'	5400	IIC1*	Northeast	Upland lower slope	1-4	Good	Good	?	Wheat	Grazed
32	Pocatello	Bannock	Idaho	42°48'	112°23'	4500	IIC1*	East	Terrace slope	5	Good	Good	1	Herbaceous	Undisturbed
34	Pocatello	Bannock	Idaho	42°55'	112°28'	4440	IIC1*	Southeast	Terrace flat	1	Poor to medium	Good	2	Herbaceous	Grazed
35	Pocatello	Bannock	Idaho	42°55'	112°26'	4480	IIIA1*	Southeast	Upland flat	1-2	Good	Good	1	Herbaceous	Cultivated
36	Pocatello	Bannock	Idaho	42°55'	112°29'	4440	IIC1*	Southeast	Terrace flat	1	Medium	Good	2	Alfalfa	Grazed
37	Aberdeen	Bingham	Idaho	42°54'	112°48'	4410	IIC1*	Southwest	Terrace flat	1	Good	Good	1	Herbaceous	Cultivated
38	Aberdeen	Bingham	Idaho	42°55'	112°51'	4420	IIC1*	Southwest	Terrace flat	1	Medium	Good	2	Alfalfa	Cultivated
39	Aberdeen	Bingham	Idaho	42°57'	112°52'	4490	IIC1*	East	Terrace flat	1	Medium	Good	2	Alfalfa	Cultivated
40	Springfield	Bingham	Idaho	43°04'	112°46'	4405	IIC1*	Northeast	Terrace flat	1	Good	Good	2	Alfalfa	Cultivated
41	Springfield	Bingham	Idaho	43°04'	112°43'	4350	IIC1*	Southeast	Terrace flat	1	Medium to poor	Poor	4	Herbaceous	Grazed
42	Springfield	Bingham	Idaho	43°05'	112°40'	4405	IIC1*	Northeast	Terrace slope	2	Good	Good	2	Alfalfa	Cultivated
43	Blackfoot	Bingham	Idaho	43°12'	112°15'	4550	IIIB*	Southeast	Bottom flat	1	Medium	Poor	3	Herbaceous	Grazed
44	Blackfoot	Bingham	Idaho	43°12'	112°15'	4540	IIB1*	West	Bottom flat	1	Poor	Poor	4	Herbaceous	Grazed
45	Blackfoot	Bingham	Idaho	43°12'	112°18'	4550	IIC1*	West	Terrace flat	1	Good	Good	2	Herbaceous	Grazed
46	Blackfoot	Bingham	Idaho	43°12'	112°25'	4550	IIC1*	West	Terrace flat	1	Medium	Good	2	Herbaceous	Grazed
47	Idaho Falls	Bonneville	Idaho	43°27'	112°01'	4700	IIC1*	East	Terrace flat	1	Medium	Good	2	Alfalfa	Cultivated
48	Idaho Falls	Bonneville	Idaho	43°30'	111°58'	4800	IIC1*	Southeast	Terrace flat	1	Good	Good	1	Herbaceous	Undisturbed
49	Idaho Falls	Bonneville	Idaho	43°36'	112°00'	4840	IIC1*	East	Terrace flat	1	Medium	Good	2	Herbaceous	Grazed
50	Idaho Falls	Bonneville	Idaho	43°30'	112°04'	4730	IIIA2*	Southwest	Terrace flat	1	Good to medium	Good	1	Herbaceous	Grazed
51	Idaho Falls	Bonneville	Idaho	43°30'	112°04'	4760	IIIA2*	Northeast	Upland flat	1	Good	Good	1	Herbaceous	Hay

(Continued)

* Engineering Conference Land Form questionable.

Table B1 (Continued)

Site No.	Weather Station	County or Parish	State	Lat	Long.	El ft	Eng Conf Land Form	Topography: Aspect	Topography: Position	Topography: Slope %	Drainage: Surface	Drainage: Internal	Wetness Index	Vegetation	Land Use
								Intermountain Region (Continued)							
52	AEC Reactor Center	Bingham	Idaho	43°28'	112°47'	4950	IIH*	South	Upland flat	1	Good	Poor	1	Herbaceous	Undisturbed
53	AEC Reactor Center	Bingham	Idaho	43°28'	112°47'	4950	IIH*	North	Upland flat	2	Good	Poor	1	Herbaceous	Undisturbed
54	Arco	Butte	Idaho	43°41'	113°20'	5340	IIC1*	West	Terrace slope	3	Good	Good	1	Herbaceous	Grazed
55	Arco	Butte	Idaho	43°41'	113°20'	5315	IIC1*	West	Terrace slope	2	Good	Good	2	Alfalfa	Cultivated
56	Arco	Butte	Idaho	43°37'	113°18'	5320	IIC1*	Southeast	Terrace flat	1	Medium to good	Poor	2	Herbaceous	Hay
57	Arco	Butte	Idaho	43°36'	113°19'	5350	IIC1*	Southeast	Terrace flat	1	Good	Good	1	Herbaceous	Grazed
58	Hailey	Blaine	Idaho	43°31'	114°20'	5250	IIC1*	West	Bottom flat	1	Medium	Good	2	Herbaceous	Grazed
59	Hailey	Blaine	Idaho	43°31'	114°20'	5351	IIC1*	Southeast	Upland upper slope	2	Good	Medium	2	Herbaceous	Grazed
60	Hailey	Blaine	Idaho	43°33'	114°15'	5480	IIB1*	East	Bottom flat	1	Medium	Good	4	Herbaceous	Grazed
61	Gooding	Gooding	Idaho	42°58'	114°42'	3550	IIC1*	Northeast	Terrace flat	1	Good	Good	2	Herbaceous	Undisturbed
62	Gooding	Gooding	Idaho	42°57'	114°38'	3600	IIC1*	West	Terrace flat	1	Good	Good	2	Herbaceous	Grazed
63	Gooding	Gooding	Idaho	42°54'	114°43'	3630	IIIA2*	Northwest	Upland flat	2	Good	Good	1	Herbaceous	Grazed
64	Bliss	Gooding	Idaho	42°55'	114°50'	3260	IIIA2*	Northeast	Upland flat	1	Good	Good	1	Herbaceous	Grazed
65	Bliss	Gooding	Idaho	42°57'	114°58'	3100	IIIA2*	South	Upland depression	1	Good	Good	1	Herbaceous	Grazed
66	Bliss	Gooding	Idaho	42°56'	114°58'	3360	IIIA2*	East	Upland upper slope	2	Good	Good	1	Herbaceous	Grazed
67	Mountain Home	Elmore	Idaho	43°04'	115°39'	3200	IIC1*	Northeast	Upland flat	1	Good	Poor	1	Herbaceous	Undisturbed
68	Mountain Home	Elmore	Idaho	43°08'	115°43'	3180	IIC1*	East	Terrace flat	1	Good	Medium to good	1	Herbaceous	Grazed
69	Mountain Home	Elmore	Idaho	43°09'	115°42'	3170	IIC1*	Southeast	Terrace flat	1	Good	Good	1	Herbaceous	Grazed
70	Idaho City	Boise	Idaho	43°45'	115°56'	5000	IVB3*	Northwest	Upland ridge	10	Good	Good	4	Ponderosa pine and snowberry, herbaceous	Undisturbed
71	Idaho City	Boise	Idaho	43°42'	116°00'	4500	IVB3*	Southeast	Upland upper slope	30	Good	Good	2	Herbaceous with some trees	Undisturbed
72	Arrow Rock Dam	Boise	Idaho	43°38'	115°59'	3900	IID*	West	Upland lower slope	12	Good	Poor	2	Herbaceous	Undisturbed
73	Arrow Rock Dam	Boise	Idaho	43°35'	115°59'	3800	IID*	Northeast	Upland lower slope	10	Good	Poor	2	Herbaceous	Undisturbed
74	Boise	Ada	Idaho	43°34'	116°07'	2650	IIC1*	Northwest	Terrace flat	1	Good	Good	1	Herbaceous	Grazed
75	Boise	Ada	Idaho	43°33'	116°09'	2850	IIC1*	Southeast	Upland flat	1-3	Good	Poor	1	Herbaceous	Grazed
76	Boise	Ada	Idaho	43°34'	116°16'	2835	IIC1*	Northwest	Bottom flat	1	Medium	Good	4	Herbaceous	Grazed
77	Cascade	Valley	Idaho	44°28'	116°00'	4800	IIB1*	Northwest	Bottom flat	1	Medium	Good	4	Herbaceous	Grazed
78	Jerome	Jerome	Idaho	42°41'	114°33'	3750	IIIB*	Southeast	Upland depression	1	Medium	Good	4	Herbaceous	Grazed
79	Jerome	Jerome	Idaho	42°41'	114°30'	3850	IIIB*	Southwest	Upland upper slope	3	Good	Good	2	Alfalfa	Cultivated
80	Jerome	Jerome	Idaho	42°43'	114°30'	3860	IIIA2*	Southwest	Upland flat	1	Good	Good	2	Oats, barley, and wheat	Cultivated
81	Hazelton	Jerome	Idaho	42°36'	114°09'	4060	IIIA2*	East	Upland lower slope	1	Good	Good	2	Wheat	Cultivated
82	Hazelton	Jerome	Idaho	42°35'	114°09'	4060	IIIA1*	West	Upland lower slope	2	Good	Good	1	Herbaceous	Grazed
83	Rupert	Minidoka	Idaho	42°38'	113°45'	4200	IIC1*	Southeast	Terrace flat	1	Medium	Medium	2	Herbaceous	Grazed
84	Rupert	Minidoka	Idaho	42°38'	113°41'	4200	IIC1*	Southeast	Terrace flat	1	Medium	Good	2	Alfalfa	Cultivated
85	Rupert	Minidoka	Idaho	42°35'	113°38'	4150	IIC1*	Southwest	Terrace slope	2	Poor	Poor	1	Herbaceous	Undisturbed
86	Burley	Cassia	Idaho	42°31'	113°48'	4100	IIC1*	West	Terrace flat	1	Good	Good	1	Herbaceous	Undisturbed
87	Burley	Cassia	Idaho	42°29'	113°45'	4100	IIC1*	Northwest	Terrace flat	1	Good	Good	2	Herbaceous	Grazed
88	Cascade	Valley	Idaho	44°32'	115°56'	5200	IVB3*	Southeast	Upland upper slope	30	Good	Good	2	Pine forest	Undisturbed
89	Cascade	Valley	Idaho	44°32'	116°00'	4812	IIC1*	South	Terrace slope	1-5	Good	Good	2	Herbaceous	Grazed
90	McCall	Valley	Idaho	44°54'	116°10'	5100	IVB1*	Northeast	Upland flat	1	Good	Good	2	Herbaceous with some trees	Grazed
91	McCall	Adams	Idaho	44°54'	116°10'	5025	IVB1*	Southwest	Upland lower slope	15	Good	Good	2	Herbaceous with some trees	Grazed
92	Strevell	Cassia	Idaho	42°08'	113°20'	5100	IIG1*	North	Terrace flat	1	Medium to good	Good	1	Herbaceous	Grazed
93	Strevell	Cassia	Idaho	42°08'	113°20'	5100	IIG1*	Southwest	Terrace flat	1	Good	Good	1	Herbaceous	Grazed
94	Ephraim Alpine Meadows	Sanpete	Utah	39°19'	111°27'	9860	IIB1*	Southwest	Upland lower slope	2	Good	Good	4	Herbaceous	Experimental forest,
95	Ephraim GSRC	Sanpete	Utah	39°18'	111°27'	8500	IVA1*	Northeast	Upland lower slope	3	Good	Good	3	Aspen and snowberry, brush understory	Undisturbed
96	Ephraim Oaks	Sanpete	Utah	39°19'	111°30'	7655	IVA1*	Southwest	Upland lower slope	7	Good	Good	2	Oak and snowberry, brush understory	Grazed
97	Ephraim Sorensons Field	Sanpete	Utah	39°21'	111°35'	5580	IIC1*	Southwest	Terrace slope	3	Good	Medium	2	Herbaceous	Grazed
98	Ephraim Sorensons Field	Sanpete	Utah	39°21'	111°37'	5500	IIC1*	Southeast	Bottom flat	1	Poor	Poor	4	Herbaceous	Grazed

(Continued)

* Engineering Conference Land Form questionable.

Table B1 (Concluded)

Site No.	Weather Station	County or Parish	State	Lat	Long.	El ft	Eng Conf Land Form	Topography: Aspect	Topography: Position	Topography: Slope %	Drainage: Surface	Drainage: Internal	Wetness Index	Vegetation	Land Use
							Intermountain Region (Continued)								
99	Ephraim Sorensons Field	Sanpete	Utah	39°23'	111°35'	5560	IIC1*	Northwest	Terrace flat	1	Medium to good	Good	2	Alfalfa	Experimental plot
100	Richfield	Sevier	Utah	38°46'	112°04'	5295	IIC1*	Southwest	Bottom flat	1	Medium	Poor	4	Herbaceous	Grazed
101	Richfield	Sevier	Utah	38°45'	112°05'	5285	IIC1*	Southeast	Bottom flat	1	Medium	Medium	3	Herbaceous	Grazed
102	Richfield	Sevier	Utah	38°42'	112°05'	5315	IIC1*	Southeast	Terrace slope	2-8	Good	Good	2	Herbaceous	Grazed
103	Circleville	Piute	Utah	38°11'	112°13'	5650	IIC1*	South	Bottom flat	1	Poor	Poor	4	Herbaceous	Cultivated
104	Circleville	Piute	Utah	38°10'	112°15'	5635	IIC1*	Southeast	Terrace flat	1	Medium	Good	2	Alfalfa	Grazed
105	Circleville	Garfield	Utah	38°09'	112°18'	5660	IIC1*	Northeast	Terrace flat	1	Poor	Poor	2	Herbaceous	Grazed
106	Zion National Park	Washington	Utah	37°11'	113°00'	3950	IIC1*	Southwest	Terrace slope	3-4	Medium	Good	2	Herbaceous	Hay
107	Zion National Park	Washington	Utah	37°10'	113°00'	3800	IIC1*	Southwest	Terrace flat	1	Medium	Good	2	Herbaceous	Grazed
108	La Verkin	Washington	Utah	37°12'	113°16'	3060	IIC1*	Southeast	Upland lower slope	2-5	Good	Poor	4	Fruit trees, herbaceous understory	Undisturted
109	La Verkin	Washington	Utah	37°12'	113°16'	3240	IIC1*	East	Upland lower slope	2-5	Good	Poor	4	Herbaceous	Grazed
110	St. George	Washington	Utah	37°07'	113°31'	2700	IIH*	Southeast	Upland lower slope	1-3	Good	Good to medium	1	Herbaceous	Grazed
111	St. George	Washington	Utah	37°05'	113°33'	2820	IIB1*	South	Terrace flat	1	Medium	Good	3	Herbaceous with some trees	Grazed
112	St. George	Washington	Utah	37°05'	113°33'	2835	IIB1*	Southeast	Terrace flat	1	Medium to poor	Poor	3	Herbaceous	Grazed
113	St. George	Washington	Utah	37°07'	113°36'	2880	IID*	West	Upland lower slope	2	Good	Good	1	Herbaceous	Grazed
114	St. George	Washington	Utah	37°07'	113°36'	2860	IID*	South	Upland lower slope	3	Good	Good	1	Herbaceous	Grazed
115	Enterprise	Washington	Utah	37°33'	113°43'	5400	IIC1*	South	Terrace flat	1	Medium to good	Poor to medium	1	Herbaceous	Grazed
116	Enterprise	Washington	Utah	37°33'	113°42'	5400	IIC1*	Northwest	Terrace flat	1	Good	Good	1	Herbaceous	Grazed
117	Enterprise	Washington	Utah	37°33'	113°41'	5420	IIC1*	Northwest	Terrace slope	2	Good	Good	1	Herbaceous	Undisturted
118	Enterprise Beryl Junction	Iron	Utah	37°44'	113°43'	5400	IIF*	Northeast	Upland lower slope	2	Medium	Good	1	Herbaceous	Undisturbed
119	Enterprise Beryl Junction	Iron	Utah	37°42'	113°38'	5370	IIF*	Northeast	Upland flat	1	Good	Good	1	Herbaceous	Grazed
120	Cedar City	Iron	Utah	37°38'	112°58'	5600	IIH*	Northwest	Upland flat	1	Good	Good	1	Herbaceous	Grazed
121	Cedar City	Iron	Utah	37°44'	112°58'	5750	IIH*	West	Upland flat	3	Good	Good	1	Herbaceous	Grazed
122	Milford	Beaver	Utah	38°21'	112°59'	4970	IIC1*	West	Terrace flat	1	Poor	Good	1	Herbaceous	Grazed
123	Milford	Beaver	Utah	38°22'	113°00'	4955	IIC1*	West	Terrace flat	1	Good	Good	2	Alfalfa	Cultivated
124	Milford	Beaver	Utah	38°22'	113°00'	4966	IIC1*	Northwest	Bottom flat	1	Medium	Poor to medium	4	Herbaceous	Grazed
125	Milford	Beaver	Utah	38°24'	113°02'	5150	IIH*	Northeast	Upland upper slope	3	Good	Good	1	Herbaceous	Grazed
126	Desert Exp Sta	Millard	Utah	38°34'	113°44'	6000	IIH*	East	Upland flat	1	Good	Good	1	Herbaceous	Grazed
127	Desert Exp Sta	Millard	Utah	38°35'	113°44'	6000	IIH*	East	Upland lower slope	2	Good	Good	1	Herbaceous	Undisturbed
128	Desert Exp Sta	Millard	Utah	38°35'	113°43'	5950	II I*	West	Upland depression	0	Poor	Poor	1	Bare	Bare
129	Garrison	Millard	Utah	38°55'	114°01'	5300	IIC1*	West	Terrace flat	1	Good	Good	1	Herbaceous	Grazed
130	Garrison	Millard	Utah	38°56'	114°02'	5285	IIH*	Northeast	Upland lower slope	2	Good	Good	1	Herbaceous	Grazed
131	Garrison	Pine	Nev.	38°57'	114°03'	5230	IIH*	Northeast	Upland lower slope	1	Good	Good	1	Herbaceous	Grazed
132	Ely	White Pine	Nev.	39°13'	114°50'	6410	IID*	East	Upland lower slope	1	Good	Good	1	Herbaceous	Grazed
133	Ely	White Pine	Nev.	39°13'	114°50'	6385	II I*	East	Bottom flat	1	Poor	Poor	4	Herbaceous	Grazed
134	Ely	White Pine	Nev.	39°14'	114°50'	6400	IIH*	East	Upland lower slope	3	Good	Good	1	Herbaceous	Grazed
135	Wells	Elko	Nev.	41°04'	114°57'	5725	IIH*	West	Upland lower slope	2	Good	Good	1	Herbaceous	Grazed
136	Wells	Elko	Nev.	41°05'	114°57'	5650	IID*	Southeast	Upland lower slope	1	Good	Good	1	Herbaceous	Grazed
137	Wells	Elko	Nev.	41°05'	114°57'	5635	IID*	West	Upland lower slope	1	Medium	Good	1	Herbaceous	Grazed
138	Pequop	Elko	Nev.	41°04'	114°33'	6950	IVB1*	North	Upland lower slope	5	Good	Good	1	Herbaceous	Grazed
139	Pequop	Elko	Nev.	41°03'	114°31'	6800	IIC1*	Northeast	Bottom flat	1	Medium to poor	Good	1	Herbaceous	Grazed
140	Pequop	Elko	Nev.	41°02'	114°28'	6600	IIH*	Northeast	Upland lower slope	2	Good	Good	1	Herbaceous	Grazed
141	Wendover	Tooele	Utah	40°44'	114°02'	4240	IIG*	Level	Bottom flat	0	Poor	Poor	4	Bare	Bare
142	Wendover	Tooele	Utah	40°44'	114°00'	4240	IIG*	Level	Bottom flat	0	Poor	Poor	4	Bare	Bare
143	Wendover	Tooele	Utah	40°44'	113°20'	4239	IIG*	Level	Bottom flat	0	Poor	Poor	4	Bare	Bare
144	Wendover	Tooele	Utah	40°44'	113°19'	4239	IIG*	Level	Bottom flat	0	Poor	Poor	4	Bare	Bare
145	Wendover	Tooele	Utah	40°44'	113°15'	4239	IIH*	Level	Bottom flat	0	Medium	Good	1	Herbaceous	Undisturbed

* Engineering Conference Land Form questionable.

Table B2a

Soil Properties of Strength-Moisture Survey Sites

Southern Region

Site No.	Soil Series	Depths Sampled in.	Texture Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	UNCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	UNCS Class.	Bulk Density g/cc	Soil Moisture by Weight, % Saturation	-.06 Atmosphere Tension
101	Dundee	0-6	SiL	12	63	25		0	119					1.50	31.2	27.0
		6-12	SiL	11	64	25	99		2.0	38	22	16	CL	1.56	27.6	26.2
102	Commerce	0-6	SiL	31	61	8		0	1.6					1.31	36.4	30.0
		6-12	SiL	21	65	14	93		0.6	29	25	4	ML	1.53	30.0	26.2
103	Commerce	0-6	SiL	23	63	14		0	1.2					1.39		29.0
		6-12	SiL	20	67	13	93		0.4	32	23	9	CL	1.48		27.1
104	Dundee	0-6	SiL	15	57	28		0	4.5					1.37	35.6	28.0
		6-12	SiCL	13	56	31	97		4.0	52	23	29	CH	1.49	30.8	29.5
105	Madrland	0-6	SiL	18	59	13		0	3.3					1.27	----	32.2
		6-12	SiL	25*	61*	14*	80*		0.7	NV	Nonplastic		ML	1.36	----	27.7
106	Sharkey	0-6	SiC	10	45	45		0	3.6					1.02	63.6	54.7
		6-12	C	21	19	60	99		1.5	82	32	50	CH	1.14	57.7	55.7
107	Sharkey	0-6	C	5	39	56		0	3.0					1.00	66.0	57.6
		6-12	C	5	39	56	97		1.3	81	32	49	CH	1.11	56.6	55.2
108	Sharkey	0-6	SiCL	12	50	38		0	3.8					1.21	46.6	43.1
		6-12	C	10	34	56	97		1.3	74	28	46	CH	1.22	48.5	47.2
109	Alligator	0-6	SiCL	8	48	44		0	4.2					1.10	57.0	53.1
		6-12	C	7	30	63	98		1.2	76	30	46	CH	1.22	50.2	48.4
110	Sharkey	0-6	SiC	16	42	42		0	2.5					1.36	40.1	38.3
		6-12	C	7	35	58	98		0.8	72	28	44	CH	1.24	49.1	46.5
111	Dubbs	0-6	SiL	23	62	15		0	4.8					1.45	29.2	26.3
		6-12	SiL	23	53	24	92		2.2	34	19	15	CL	1.64	24.0	22.8
112	Dubbs	0-6	SiL	27	55	18		0	3.7					1.51	26.5	24.9
		6-12	L	29	49	22	90		1.4	37	21	16	CL	1.51	27.9	26.4
113	Sharkey	0-6	SiCL	7	56	37		0	4.0					1.39	32.2	30.8
		6-12	SiCL	7	54	39	96		1.9	57	25	32	CH	1.41	32.2	31.5
114	Tunica	0-6	SiC	9	42	49		0	1.6					1.34	37.0	35.9
		6-12	SiC	12	44	44	95		1.0	57	24	33	CH	1.38	35.0	34.0
115	Loring	0-6	SiL	11	78	11		0	2.4					1.32	36.5	32.6
		6-12	SiL	8	75	17	100		0.6	26	22	4	ML	1.41	30.9	26.4
116	Grenada	0-6	SiL	8	68	24		0	0.4					1.56	26.8	25.5
		6-12	SiCL	7	66	27	99		0.2	37	22	15	CL	1.54	28.1	26.8
117	Loring	0-6	SiL	10	72	18		0	1.3					1.32	36.2	32.0
		6-12	SiL	8	70	22	99		0.5	36	23	13	CL	1.46	30.8	29.3
118	Lintonia	0-6	SiL	12	77	11		0	2.9					1.46	28.9	26.5
		6-12	SiL	9	73	18	98		1.4	32	22	10	CL	1.56	25.6	24.1
119	Clack	0-6	SL	53	39	8		0	1.0					1.51	25.3	19.1
		6-12	SL	72	20	8	35		0.6	15**	Nonplastic		SM	1.56	22.3	14.2
120	Forestdale	0-6	SiL	24	58	18		0	2.2					1.39	31.9	28.8
		6-12	L	48	40	12	59		1.6	27	18	9	CL	1.59	22.7	18.8
121	Calhoun	0-6	Si	13	80	7		0	0.8					1.45	29.6	26.9
		6-12	SiL	9	77	14	99		0.5	22**	21	1	ML	1.49	26.7	24.0
122	Waverly	0-6	SiL	10	68	22		0	2.6					1.31	34.2	31.6
		6-12	SiL	7	75	18	99		0.7	28	22	6	CL-ML	1.42	29.1	27.6
123	Waverly	0-6	SiL	11	74	15		0	2.9					1.24	40.4	35.0
		6-12	SiL	12	69	19	94		1.4	34	23	11	CL	1.31	35.6	32.6

(Continued)

* Adjusted value. ** Modified technique. NV No value.

Table B2a (Continued)

Site No.	Soil Series	Depths Sampled in.	Texture Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	USCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	USCS Class.	Bulk Density g/cc	Soil Moisture by Weight, % Saturation	.06 Atmosphere Tension
124	Dulac	0-6	SiL	28	62	10		0	1.6					1.45	27.3	24.4
		6-12	SiL	25	56	19	85		0.7	26	18	8	CL	1.49	26.3	24.4
125	Bosvell	0-6	L	34	42	24		0	2.4					1.19	42.3	37.3
		6-12	C	20	38	42	93		0.7	61	30	31	CH	1.21	47.8	46.8
126	Lexington	0-6	SiL	32	59	9		0	1.3					1.51	24.8	22.5
		6-12	SiL	25	59	16	83		0.4	24	17	7	CL-ML	1.60	22.3	20.8
127	Lafe	0-6	SiL	31	65	4		0	0.7					1.57	21.6	19.9
		6-12	SiL	28	68	4	80		0.4	17**	Nonplastic		ML	1.56	22.2	19.0
128	Waverly	0-6	SiL	11	74	15		0	2.8					1.36	30.4	28.4
		6-12	SiL	14	71	15	93		0.7	18	18	0	ML	1.52	22.4	20.4
129	Lexington	0-6	SiL	34	58	8		0	0.6					1.52	25.4	21.7
		6-12	SiL	23	57	20	88		0.3	28	18	10	CL	1.58	24.6	21.7
130	Lexington	0-6	SiL	25	65	10		0	1.2					1.54	24.2	22.7
		6-12	SiL	21	59	20	88		0.6	27	18	9	CL	1.52	24.6	23.3
131	Vian	0-6	SiL	37	54	9		0	0.8					1.50	24.8	14.2
		6-12	SiL	33	53	14	73		0.5	19	16	3	ML	1.60	21.4	15.8
132	Vian	0-6	SiL	22	73	5		0	1.6					1.54	23.5	21.2
		6-12	SL	71	20	9	33		1.2	22	16	6	SC	1.63	21.1	19.0
133	Wrightsville	0-6	SiL	41	51	8		0	1.3					1.61	21.1	19.1
		6-12	L	43	48	9	62		0.7	15	15	0	ML	1.68	19.3	17.8
134	Orangeburg	0-6	SL	60	32	8		0	1.6					1.74	17.4	15.1
		6-12	SL	53	32	15	53		0.8	18	12	6	CL-ML	1.78	16.2	15.3
135	Thompson	0-6	SL	58	36	6		0	1.2					1.59	20.9	17.3
		6-12	SL	65	27	8	39		1.0	13**	Nonplastic		SM	1.68	19.7	15.8
136	Ruston	0-6	SL	74	22	4		0	0.8					1.64	18.3	13.8
		6-12	SL	68	21	11	36		0.4	14**	Nonplastic		SM	1.74	16.3	13.4
137	Ruston	0-6	SL	68	25	7		0	1.0					1.56	20.4	15.7
		6-12	SL	56	24	20	49		0.7	24	14	10	SC	1.58	22.8	18.5
138	Ochlockonee	0-6	SiL	27	68	5		0	2.9					1.21	45.1	36.0
		6-12	SiL	35	54	11	79		1.6	23	18	5	CL-ML	1.18	43.6	34.9
139	Bowie	0-6	SL	50	43	7		0	1.9					1.46	25.8	20.7
		6-12	L	39	43	18	69		0.8	24	15	9	CL	1.51	26.2	21.0
140	Yahola	0-6	SiL	26	63	11		0	2.1					1.44	28.6	27.0
		6-12	SiL	20	69	11	99		0.6	23	23	0	ML	1.51	29.8	25.9
141	Savannah	0-6	SiL	37*	55*	8*		0	2.8	26	23	3		1.38	30.2	26.2
		6-12	SiL	33*	52*	15*	75*		0.6	28	18	10	CL	1.59	23.0	21.2
142	Caddo	0-6	SiL	18*	73*	9*		0	3.3	34	27	7		1.38	32.3	29.6
		6-12	SiL	12*	73*	15*	90*		1.0	NV	Nonplastic		ML	1.48	29.9	26.0
143	Olivier	0-6	SiL	20	70	10		0	2.5					1.35	33.2	29.4
		6-12	SiL	16	69	15	90		0.6	27	21	6	CL-ML	1.54	27.6	24.2
144	Olivier	0-6	SiL	31	60	9		0	2.6					1.37	30.0	28.2
		6-12	SiL	25	61	14	82		0.7	26	20	6	CL-ML	1.65	21.9	20.2
145	Calhoun	0-6	SiL	33	59	8		0	2.2					1.40	29.8	28.1
		6-12	SiL	18	71	11	88		0.7	18	17	1	ML	1.54	24.2	22.3
146	Richland	0-6	SiL	32	61	7		0	1.6					1.32	34.4	30.1
		6-12	SiL	30	58	12	81		1.0	18	16	2	ML	1.60	22.6	21.0
147	Savannah	0-6	L	48	44	8		0	2.9					1.48	25.4	21.8
		6-12	L	39	42	19	73		1.3	25	17	8	CL	1.56	24.4	21.0

(Continued)

* Adjusted value. ** Modified technique. NV No value.

Table B2a (Continued)

Site No.	Soil Series	Depths Sampled in.	Texture Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	USCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	USCS Class.	Bulk Density g/cc	Soil Moisture by Weight, % Saturation	.06 Atmosphere Tension
148	Susquehanna	0-6	L	52	40	8		0	1.9					1.54	24.6	20.6
		6-12	CL	37	35	28	72		0.8	34	20	14	CL	1.63	22.8	21.0
149	Sawyer	0-6	SL	65	30	5		0	1.0					1.50	25.3	20.2
		6-12	L	50	42	8	61		0.6	16**	14	2	ML	1.75	18.0	16.1
201	Falaya	0-6	SiL	13	77	10		0	1.2					1.34	33.8	31.0
		6-12	SiL	10	80	10	97		0.6	24	24	0	ML	1.37	33.4	29.4
202	Loring	0-6	SiL	11	78	11		0	1.2					1.26	37.1	30.6
		6-12	SiL	10	78	12	99		0.8	24	22	2	ML	1.33	37.0	31.2
203	Loring	0-6	Si	10	81	9		0	2.1					1.27	38.7	32.9
		6-12	SiL	8	69	23	100		0.9	32	21	11	CL	1.39	32.4	27.6
204	Falaya	0-6	SiL	20	72	8		0	1.2					1.34	35.4	31.4
		6-12	Si	7	82	11	100		0.9	25	23	2	ML	1.40	34.8	30.0
205	Calhoun	0-6	SiL	10	79	11		0	3.1					1.34	33.2	29.8
		6-12	Si	8	89	3	99		1.0	30	26	4	ML	1.38	36.4	30.3
206	Olivier	0-6	SiL	13	73	14		0	1.6					1.46	27.4	25.2
		6-12	SiL	11	69	20	96		0.1	34	23	11	CL	1.46	29.9	26.9
207	Grenada	0-6	SiL	13	77	10		0	2.1					1.40	31.5	28.5
		6-12	SiL	8	69	23	99		0.4	34	22	12	CL	1.46	30.1	26.8
208	Henry	0-6	SiCL	7	65	28		0	1.8					1.46	28.7	26.5
		6-12	SiCL	6	63	31	99		0.6	34	20	14	CL	1.44	30.2	27.6
209	Calloway	0-6	SiL	15	73	12		0	1.2					1.31	36.1	32.2
		6-12	SiL	10	71	19	97		0.5	29	22	7	CL-ML	1.27	41.9	34.0
210	Oktibbeha	0-6	CL	35	35	30		0	2.1					1.48	29.0	24.4
		6-12	C	24	30	46	80		0.7	59	20	39	CH	1.49	28.0	25.7
211	Vaiden	0-6	SiCL	11	58	31		0	2.47					1.22	†	34.8
		6-12	SiC	9	48	43	97		1.05	53	23	30	CH	1.28	†	38.9
212	Eutaw	0-6	L	38	48	14		0	1.25					1.64	20.4	18.4
		6-12	L	36	44	20	68		0.32	25	13	12	CL	1.74	18.4	17.4
213	Eutaw	0-6	SiL	20	56	24		0	2.08					1.52	26.0	24.5
		6-12	SiCL	18	51	31	86		0.62	40	18	22	CL	1.52	25.6	24.6
214	Prentiss	0-6	SiL	40	51	9		0	1.05					1.59	22.4	19.3
		6-12	SiL	25	50	25	83		0.32	33	20	13	CL	1.58	24.8	22.0
215	Mantachie	0-6	SL	70	20	10		0	1.65					1.55	22.2	19.2
		6-12	SL	79	12	9	28		0.32	18**	Nonplastic		SM	1.53	24.2	19.3
216	Tilden	0-6	L	42	47	11		0	0.70					1.56	23.4	20.4
		6-12	L	26	49	25	80		0.55	53	18	35	CH	1.56	24.7	22.4
217	Susquehanna	0-6	SiL	27	61	12		0	1.65					1.50	25.4	22.6
		6-12	SiCL	20	53	27	88		0.55	34	20	14	CL	1.51	28.6	25.2
218	Shubuta	0-6	LS	75	21	4		0	0.86					1.40	34.2	25.5
		6-12	SL	65	21	14	42		0.55	22	18	4	SM-SC	1.50	26.9	21.2
219	Brooksville	0-6	CL	21	51	28		0	1.98					1.50	30.2	27.4
		6-12	SiCL	14	50	36	89		1.25	51	23	28	CH	1.57	29.8	28.2
220	Vaiden	0-6	SiCL	16	53	31		0	1.25					1.46	33.0	31.5
		6-12	C	17	39	44	92		0.62	53	21	32	CH	1.52	32.6	30.2
221	Hunt	0-6	SiL	24	59	17		0	4.0					1.57	28.0	26.4
		6-12	SiCL	18	47	35	86		1.9	50	22	28	CH	1.55	30.4	28.4
222	Kaufman	0-6	L	35	47	18		0	2.8					1.51	26.8	21.4
		6-12	L	28	49	23	82		2.0	29	17	12	CL	1.64	22.0	20.1

(Continued)

** Modified technique. † No data obtained.

Table B2a (Continued)

Site No.	Soil Series	Depths Sampled in.	Texture Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	USCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	USCS Class.	Bulk Density g/cc	Soil Moisture by Weight, % Saturation	.06 Atmosphere Tension
223	Leeper	0-6	L	33	44	23		0	2.4					1.38	33.9	31.8
		6-12	CL	26	39	35	82		0.9	50	21	29	CL	1.57	25.8	24.9
224	Eutaw	0-6	SiL	17	61	22		0	3.9					1.07		41.2
		6-12	SiCL	15	55	30	90		1.0	45	25	20	CL	1.40		30.4
225	Eutaw	0-6	SiL	14	60	26		0	1.4					1.41	31.6	29.1
		6-12	SiCL	10	55	35	94		0.6	45	22	23	CL	1.47	32.4	31.0
226	Geiger	0-6	SiL	14	60	26		0	1.0					1.39	33.0	31.4
		6-12	SiCL	15	52	33	[illegible]2		0.6	46	26	20	CL	1.39	35.3	34.0
227	Falkner	0-6	SiL	37	55	8		0	2.6					1.53	23.6	19.8
		6-12	SiL	32	55	13	75		0.6	21	17	4	CL-ML	1.63	22.0	19.3
228	Falaya	0-6	SiL	28	53	19		0	3.3					1.46	32.6	25.2
		6-12	L	30	44	26	73		0.6	38	21	17	CL	1.51	27.1	24.0
229	Ecru	0-6	SiL	30	58	12		0	1.4					1.50	25.6	21.6
		6-12	SiL	20	57	23	86		0.9	30	17	13	CL	1.58	23.2	21.6
230	Franklinton	0-6	SiL	25	65	10		0	2.1					1.36		26.6
		6-12	SiL	20	57	23	89		0.6	32	20	12	CL	1.45		26.3
231	Shubuta	0-6	SCL	50	24	26		0	1.9					1.34	33.6	29.2
		6-12	C	38	16	46	71		1.2	55	28	27	CH	1.30	45.3	41.9
232	Collins	0-6	L	38	50	12		0	2.3					1.42		28.6
		6-12	L	31	49	20	80		1.2	30	19	11	CL	1.57		23.8
233	Waverly	0-6	SiL	12	74	14		0	1.9					1.45	30.1	27.8
		6-12	SiL	14	69	17	93		1.0	29	21	8	CL	1.52	27.7	26.1
234	Lexington	0-6	SiL	34	57	9		0	1.9					1.33	32.8	25.3
		6-12	SiL	10	75	15	97		0.6	26	18	8	CL	1.45	29.3	24.3
235	Olivier	0-6	SiL	24	63	13		0	2.2					1.46	30.0	27.4
		6-12	SiL	20	60	20	88		0.5	29	19	10	CL	1.61	24.3	22.4
236	Olivier	0-6	SiL	35	55	10		0	0.6					1.50	27.8	25.5
		6-12	SiL	30	52	18	77		0.8	27	19	8	CL	1.57	25..	23.5
237	Lexington	0-6	SiL	24	65	11		0	2.0					1.34	32.5	26.0
		6-12	SiL	18	60	22	87		0.9	28	19	9	CL	1.50	28..	23.8
238	Waverly	0-6	SiL	15	70	15		0	1.9					1.34	35.6	30.1
		6-12	SiL	20	58	22	85		0.8	34	22	12	CL	1.44	31.3	28.0
239	Independence	0-6	SL	67	22	11		0	1.9					1.49	26.8	17.6
		6-12	SL	72	21	7	30		0.7	14**	Nonplastic		SM	1.63	21.5	13.2
240	Lintonia	0-6	SiL	37	51	12		0	1.0					1.64	21.9	18.8
		6-12	SiL	25	53	22	80		0.4	29	17	12	CL	1.72	19.3	17.0
241	Carroll	0-6	SiL	20	68	12		0	0.9					1.51	25.7	22.6
		6-12	SiL	10	68	22	96		0.2	30	21	9	CL	1.60	25.4	23.4
242	Grenada	0-6	SiL	10	79	11		0	2.2					1.36	34.4	30.2
		6-12	SiL	3	73	24	100		0.4	33	22	11	CL	1.48	29.4	26.3
243	Waverly	0-6	SiL	12	76	12		0	1.3					1.44	31.0	28.0
		6-12	SiL	25	56	19	81		0.8	28	23	5	ML	1.49	30.2	26.4
244	Memphis	0-6	SiL	12	76	12		0	1.4					1.38	32.1	27.6
		6-12	SiL	8	67	25	99		0.6	34	21	13	CL	1.37	35.0	28.1
245	Waverly	0-6	SiL	7	79	14		0	1.6					1.27	39.9	35.6
		6-12	SiL	6	81	13	100		0.6	29	25	4	ML	1.47	30.2	27.8
246	Calloway	0-6	SiL	9	80	11		0	0.9					1.50		25.4
		6-12	SiL	10	71	19	97		0.6	34	24	10	ML	1.41		29.4

(Continued)

** Modified technique.

Table B2a (Continued)

Site No.	Soil Series	Depths Sampled in.	Texture Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	USCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	USCS Class.	Bulk Density g/cc	Soil Moisture by Weight, % Saturation	.06 Atmosphere Tension
247	Grenada	0-6	SiL	13	76	11		0	1.8					1.48	29.2	27.0
		6-12	SiL	8	67	25	98		0.5	34	23	11	CL	1.48	29.0	27.1
248	Calloway	0-6	SiL	16	70	14		0	1.2					1.47	29.1	25.9
		6-12	SiL	8	68	24	9[illegible]		0.5	35	24	11	ML	1.46	30.0	28.0
249	Grenada	0-6	SiL	11	73	16		0	3.4					1.48	29.1	26.9
		6-12	SiL	7	70	23	99		0.7	34	23	11	CL	1.48	29.4	27.7
250	Loring	0-6	SiL	9*	76*	15*		0	1.5					1.36	32.2	28.0
		6-12	SiCL	6*	65*	29*	47*		0.5	NV	Nonplastic		ML	1.39	31.0	27.3
251	Collins	0-6	Si	10	81	9		0	1.2					1.29	38.8	32.7
		6-12	Si	10	81	9	95		1.8	NV	Nonplastic		ML	1.34	38.3	30.7
252	Carroll	0-6	SiL	15	78	7		0	1.6					1.34	----	28.5
		6-12	SiL	10	75	15	96		0.6	34	19	15	CL	1.38	----	27.4
253	Collins	0-6	SiL	10	79	11		0	1.6					1.48	29.2	26.4
		6-12	SiL	10	77	13	99		0.5	29	4	5	ML	1.51	28.4	25.7
254	Memphis	0-6	SiL	10	67	23		0	1.3					1.52	27.4	23.9
		6-12	SiCL	5	64	31	100		0.4	42	24	18	CL	1.46	32.6	28.1
255	Olivier	0-6	SiL	15	74	11		0	1.3					1.43	----	27.2
		6-12	SiL	13	67	20	92		0.6	34	23	11	CL	1.44	----	27.4
256	Hymon	0-6	SiL	11	79	10		0	1.4					1.46	29.0	24.8
		6-12	SiL	15	72	13	95		0.6	22	20	2	ML	1.48	30.9	26.0
257	Dundee	0-6	SiL	18	60	22		0	2.5					1.39	32.8	27.3
		6-12	SiCL	13	55	32	98		1.4	46	24	22	CL	1.50	30.0	28.2
258	Dundee	0-6	SiL	23	54	23		0	1.4					1.47	28.1	25.3
		6-12	SiCL	11	54	35	96		0.6	43	25	18	CL	1.[illegible]	32.4	29.3
259	Dowling	0-6	C	20*	25*	55*		0	6.1					0.86	79.7	62.4
		6-12	C	20*	25*	55*	85*		5.1	91	42	49	MH	0.95	71.5	68.6
260	Sharkey	0-6	SiC	7	48	45		0	1.[illegible]					1.36	36.5	34.8
		6-12	C	9	38	53	99		1.2	82	28	54	CH	1.34	43.0	40.1
261	Dundee	0-6	SiL	26	58	16		0	3.3					1.54	26.0	24.2
		6-12	CL	20	51	29	97		0.9	42	22	20	CL	1.53	30.4	28.6
301	Cuthbert	0-6	SL	69	23	8		0	1.0					1.55	26.0	16.2
		6-12	SCL	50	26	24	62		0.6	26	15	11	CL	1.61	20.9	16.5
302	Rains	0-6	SL	61	32	7		0	2.6					1.43	25.9	20.1
		6-12	SL	60	32	8	54		0.8	17**	Nonplastic		ML	1.58	22.2	19.6
303	Lynchburg	0-6	SL	62	31	7		0	4.5					1.34	31.1	26.7
		6-12	SL	64	25	11	53		1.0	18**	Nonplastic		ML	1.71	19.9	16.7
304	Iuka	0-6	SiL	13	61	26		0	2.8					1.40	30.5	26.9
		6-12	SiCL	11	57	32	96		1.2	44	23	21	CL	1.48	29.5	27.7
305	Kershaw	0-6	S	93	4	3		0	1.0					1.36	32.1	11.6
		6-12	S	93	4	3	10		0.8	NV	Nonplastic		SM	1.53	24.1	8.2
306	Greenville	0-6	L	52	28	20		0	1.0					1.57	24.2	17.4
		6-12	CL	40	27	33	64		0.7	33	13	20	CL	1.56	23.4	20.1
307	Magnolia	0-6	LS	78	16	6		0	1.2					1.39	25.4	15.8
		6-12	SL	70	16	14	45		1.0	17**	Nonplastic		SM	1.52	24.4	16.9
308	Sawyer	0-6	LS	81	16	3		0	1.9					1.36	31.5	17.8
		6-12	LS	81	14	5	24		0.7	15**	Nonplastic		SM	1.51	27.1	15.6
309	Orangeburg	0-6	LS	81	13	6		0	2.4					1.57	24.6	11.9
		6-12	SL	78	13	9	27		1.0	12**	Nonplastic		SM	1.73	20.7	12.2

(Continued)

* Adjusted value. ** Modified technique. NV No value.

Table B2a (Continued)

Site No.	Soil Series	Depth Sampled in.	Texture Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	USCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	USCS Class.	Bulk Density g/cc	Soil Moisture by Weight, % Saturation	.06 Atmosphere Tension
310	Cahaba	0-6	LS	81	15	4		0	1.0					1.41	30.9	18.4
		6-12	SL	74	17	9	33		0.6	17**	Nonplastic		SM	1.53	23.2	16.0
311	Ora	0-6	SL	68	24	8		0	1.25					1.65	20.6	13.1
		6-12	SCL	50	27	23	55		0.70	24	12	12	CL	1.57	22.5	15.8
312	Red Bay	0-6	SL	72	13	15		0	0.78					1.50	26.4	17.2
		6-12	SL	68	12	20	38		0.46	21	11	10	SC	1.36	31.6	19.1
313	Norfolk	0-6	LS	80	15	5		0	1.45					1.49	28.5	18.6
		6-12	LS	79	15	6	27		0.46	13**	Nonplastic		SM	1.71	19.7	12.9
314	Bibb	0-6	SL	54*	35*	11*		0	4.57					1.26	37.9	30.7
		6-12	SL	72*	20*	8*	35*		1.35	NV	Nonplastic		SM	1.53	23.1	18.1
315	Orangeburg Dustis	0-6	S	88	8	4		0	0.86					1.48	28.5	11.6
		6-12	LS	88	5	7	20		0.46	14**	Nonplastic		SM	1.62	21.1	9.3
316	Norfolk	0-6	SL	74	18	8		0	2.08					1.68	20.5	15.6
		6-12	SL	73	14	13	31		0.70	13**	Nonplastic		SM	1.84	15.6	13.8
317	Norfolk	0-6	LS	83	12	5		0	1.15					1.60	20.3	12.0
		6-12	LS	83	9	8	24		0.46	13**	Nonplastic		SM	1.70	17.6	10.9
318	Ruston	0-6	SL	75	17	8		0	2.08					1.46	25.5	15.0
		6-12	SL	76	12	12	28		0.70	14**	Nonplastic		SM	1.71	17.5	12.4
319	Unclassified	0-6	SiC	12*	47*	42*		0	7.45					1.00	58.3	48.2
		6-12	C	14*	38*	48*	90*		11.33	61	38	23	OH	1.00	56.6	52.8
320	Norfolk	0-6	SL	76	14	10		0	2.08					1.58	22.8	14.6
		6-12	SL	73	10	17	32		0.78	15**	Nonplastic		SM	1.74	18.4	14.5
321	Faceville	0-6	LS	81	10	9		0	0.95					1.54	23.7	17.6
		6-12	SCL	70	9	21	37		0.78	19**	Nonplastic		SM	1.51	24.8	20.2
322	Grady	0-6	SL	71	14	15		0	4.34					1.26	28.8	20.6
		6-12	SL	75	8	17	17		0.95	17**	16	1	SM	1.71	17.4	14.9
323	Klej	0-6	LS	84	7	9		0	2.60					1.33	33.6	20.2
		6-12	LS	84	9	7	23		1.05	14**	Nonplastic		SM	1.64	19.8	13.8
324	Congaree	0-6	CL	34	37	29		0	2.75					1.29	35.6	32.2
		6-12	CL	34	27	39	74		1.25	38	19	19	CL	1.54	24.8	23.9
325	Vancluse	0-6	S	90	6	4		0	0.62					1.56	21.6	12.5
		6-12	LS	88	5	7	23		0.32	13**	Nonplastic		SM	1.71	18.4	14.1
326	Barth	0-6	LS	85	10	5		0	1.45					1.57	21.8	18.0
		6-12	S	88	8	4	27		0.46	15**	Nonplastic		SM	1.57	20.8	15.6
327	Red Bay	0-6	LS	83	12	5		0	1.98					1.50	26.3	16.8
		6-12	SL	80	9	11	25		0.62	14	Nonplastic		SM	1.60	20.5	15.7
328	Faceville	0-6	SL	75	7	18		0	1.25					1.50	24.8	21..
		6-12	SCL	62	5	33	41		0.70	31**	Nonplastic		SM	1.45	29.5	27.5
329	Ochlockonee	0-6	SL	71	16	13		0	2.75					1.50	24.9	20.4
		6-12	SCL	69	11	20	37		1.05	21**	Nonplastic		SM	1.45	27.4	21.0
330	Plummer	0-6	LS	85	11	4		0	4.34					1.38	31.7	20.0
		6-12	LS	88	6	6	18		1.98	14**	Nonplastic		SM	1.60	21.4	14.2
331	Lakeland	0-6	S	88	8	4		0	1.55					1.52	27..	20.1
		6-12	S	90	5	5	16		0.70	14**	Nonplastic		SM	1.61	22.3	13.2
332	Leon	0-6	S	91	6	3		0	2.60					1.38	32.5	19.5
		6-12	S	90	6	4	18		1.45	15**	Nonplastic		SM	1.52	23.4	13.2
333	Lakeland	0-6	S	91	5	4		0	1.05					1.48	26.7	10.4
		6-12	S	91	4	5	14		0.55	14**	Nonplastic		SM	1.59	23.7	10.0

(Continued)

* Adjusted value ** Modified technique. NV No value.

Table B2a (Continued)

Site No.	Soil Series	Depths Sampled in.	Texture Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	USCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	USCS Class.	Bulk Density g/cc	Soil Moisture by Weight, % Saturation	.06 Atmosphere Tension
[illegible]	Tunnelville	0-6	LS	85	11	4		0	2.60					1.33	32.5	18.8
		6-12	LS	88	5	7	18		2.87	19**	Nonplastic		SM	1.36	30.0	20.7
[illegible]	Johnston	0-6	LS	86	10	4		0	1.15					1.48	24.6	13.8
		6-12	S	89	3	8	13		0.78	14**	Nonplastic		SM	1.62	19.9	13.3
[illegible]	Ruston	0-6	SL	68	26	6		0	4.05					1.25	32.6	22.4
		6-12	S	92	6	2	33		0.25	16**	Nonplastic		SM	1.51	23.3	12.7
337	Lynchburg	0-6	LS	85	11	4		0	2.08					1.59	19.9	13.5
		6-12	LS	86	8	6	23		0.70	13**	Nonplastic		SM	1.63	19.6	12.2
338	Lynchburg	0-6	LS	86	9	5		0	1.45					1.55	21.7	13.3
		6-12	LS	87	7	6	22		0.62	12**	Nonplastic		SM	1.67	18.9	12.4
339	Izagora	0-6	SL	73	17	10		0	1.05					1.74	15.1	11.5
		6-12	SL	72	11	17	33		0.38	17	11	6	SM-SC	1.83	14.4	11.0
340	Irvington	0-6	LS	84	9	7		0	1.50					1.66	21.2	10.9
		6-12	SL	80	8	12	28		0.75	22	13	9	SC	1.80	18.4	12.6
341	Tifton	0-6	LS	88	6	6		0	1.05					1.63	22.2	9.0
		6-12	SL	76	6	18	31		0.55	15	12	3	SM	1.72	17.9	10.4
342	Grady	0-6	L	51	32	17		0	5.04					1.22	44.6	32.2
		6-12	SCL	58	22	20	47		1.25	17	10	7	SC-SM	1.80	16.3	13.7
343	Unclassified	0-6	SL	74	17	9		0	1.88					1.60	21.7	15.7
		6-12	SL	73	12	15	33		0.70	14**	Nonplastic		SM	1.78	16.9	13.7
344	Greenville	0-6	SL	80	9	11		0	1.15					1.56	23.0	14.4
		6-12	SCL	61	11	28	43		0.70	21	12	9	SC	1.72	19.1	16.2
345	Magnolia	0-6	LS	86	10	4		0	0.38					1.48	27.2	13.1
		6-12	SCL	68	11	21	39		0.38	20	11	9	SC	1.72	18.2	14.8
346	Henderson	0-6	SL	58	32	10		2	3.41					1.57	23.6	18.7
		6-12	SL	57	23	20	48		1.33	18**	10	8	SC	1.64	21.0	17.8
347	Byars	0-6	L	44	36	20		0	4.52					1.31	36.6	33.1
		6-12	SCL	50	24	26	58		2.87	31	19	12	CL	1.59	23.2	21.5
348	Lakeland	0-6	LS	84	13	3		0	0.78					1.41	31.0	25.1
		6-12	LS	84	10	6	25		0.70	15**	Nonplastic		SM	1.44	29.3	22.9
349	Ruston	0-6	LS	81	12	7		0	1.98					1.42	30.6	20.3
		6-12	LS	80	12	8	24		0.86	18**	Nonplastic		SM	1.56	23.6	18.0
350	Cuthbert	0-6	LS	82	9	9		0	1.33					1.45	29.4	18.7
		6-12	SC	46	9	45	56		0.86	49	23	26	CL	1.27	41.7	39.8
351	Mantachie	0-6	SL	73	19	8		0	1.25					1.47	26.8	21.6
		6-12	SL	69	19	12	38		0.86	18**	Nonplastic		SM	1.45	28.6	23.1
352	Susquehanna	0-6	SCL	60	13	27		0	1.88					1.37	33.6	30.4
		6-12	C	42	13	45	68		0.55	57	28	29	CH	1.34	36.0	36.7
353	Boswell	0-6	LS	81	12	7		0	1.15					1.23	42.4	32.7
		6-12	SCL	61	10	29	52		0.86	39	18	21	CL	1.36	36.5	35.2
354	Bibb	0-6	S	89	6	5		0	1.05					1.49	26.0	23.2
		6-12	S	88	7	5	25		0.55	19**	Nonplastic		SM	1.47	26.3	23.0
355	Byars	0-6	SL	55	38	7		0	3.27					1.50	26.6	19.2
		6-12	SL	63	30	7	44		1.25	NV	Nonplastic		SM	1.52	24.4	16.6
356	Flint	0-6	SL	72	21	7		0	0.62					1.42	29.6	23.4
		6-12	SL	65	23	12	49		0.32	17**	Nonplastic		SM	1.43	29.4	22.8
357	Geiger	0-6	CL	39	28	33		0	3.13					1.46	30.7	24.2
		6-12	CL	42	27	31	62		1.25	45	20	25	CL	1.43	30.0	22.4

(Continued)

** Modified technique. NV No value.

Table B2a (Concluded)

Site No.	Soil Series	Depths Sampled in.	Texture Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	USCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	USCS Class.	Bulk Density g/cc	Soil Moisture by Weight, % Saturation	.06 Atmosphere Tension
358	Stough	0-6	SL	59	33	8		0	3.13					1.57	20.6	16.8
		6-12	SL	73	20	7	33		0.38	13**	Nonplastic		SM	1.68	17.7	12.8
359	Sumter	0-6	SiCL	15	50	35		0	3.62					1.36	34.9	32.6
		6-12	SiCL	13	56	31	92		1.32	51	24	27	CH	1.50	29.6	28.8
360	Catalpa	0-6	SiL	13	62	25		0	3.13					1.37	34.0	32.3
		6-12	SiCL	10	54	36	96		2.35	63	27	36	CH	1.28	40.7	40.2
361	Sumter	0-6	SiCL	20	53	27		0	1.25					1.42	31.6	30.4
		6-12	SiC	13	47	40	95		0.70	60	22	38	CH	1.46	31.2	30.7
362	Sumter	0-6	SiL	21	56	23		0	2.35					1.40	30.6	28.3
		6-12	SiCL	15	51	34	90		1.45	58	26	32	CH	1.38	34.8	34.3
364	Eutaw	0-6	CL	24	46	30		0	2.23					1.40	31.6	29.8
		6-12	CL	20	42	38	90		0.55	49	20	29	CL	1.48	29.5	29.0
365	Huckabee	0-6	LS	78	15	7		0	1.15					1.48	26.6	16.4
		6-12	LS	81	13	6	26		0.95	16**	Nonplastic		SM	1.56	23.4	15.4
366	Byars	0-6	SCL	53	22	25		0	1.45					1.46	27.5	24.9
		6-12	CL	45	21	34	68		0.78	40	19	21	CL	1.49	28.5	27.6
367	Pheba	0-6	SL	65	29	6		0	1.65					1.56	22.0	17.7
		6-12	SL	62	30	8	48		0.38	13**	Nonplastic		SM	1.62	21.1	17.4
368	Bibb	0-6	SiL	30	53	17		0	3.77					1.34	34.3	31.4
		6-12	L	43	37	20	75		0.86	26	16	10	CL	1.50	25.6	24.3
369	Cuthbert	0-6	SL	75	18	7		0	0.95					1.51	24.3	18.0
		6-12	SCL	52	23	25	59		0.62	31	15	16	CL	1.64	21.2	20.0

** Modified technique.

Table B2b

Soil Properties of Strength-moisture Survey Sites

Northeastern Region

Site No.	Soil Series	Depths Sampled in.	Texture Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	USCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	USCS Class.	Bulk Density g/cc	Soil Moisture by Weight, % Saturation	.06 Atmosphere Tension
1	Tioga	0-6	SiL	35	52	13		0	0.95					1.43	32.1	27.0
		6-12	SiL	33	52	15	81		0.78	27	22	5	CL-ML	1.60	25.2	21.8
2	Tioga	0-6	SL	70	25	5		0	2.08					0.98	53.7	32.2
		6-12	SL	62	35	3	55		1.55	26**	Nonplastic		ML	1.14	44.2	33.7
3	Lackawanna	0-6	SiL	28	59	13		15	4.15					1.22	41.8	31.0
		6-12	SiL	28	59	13	85		1.77	26	22	4	ML	1.51	28.5	25.3
4	Canfield	0-6	C	16	41	43		20	4.52					0.94	68.6	50.4
		6-12	C	16	41	43	90		1.88	32	23	9	ML	1.46	30.9	25.6
5	Papakating	0-6	Muck	30*	51*	19*		0	26.29					0.56††	135.5	120.5
		6-12	Muck	35*	56*	9*	70*		21.85	NV	Nonplastic		OL	0.53††	141.8	133.3
6	Woostern	0-6	SiL	24	63	13		20	3.00					1.13	49.5	30.6
		6-12	SiL	20	67	13	90		2.23	32	24	8	ML	1.24	43.4	30.2
7	Tioga	0-6	SL	75	21	4		0	2.60					1.16	51.9	31.1
		6-12	SL	76	17	7	33		1.15	19**	Nonplastic		SM	1.42	34.3	22.4
8	Holly	0-6	L	41	49	10		0	2.87					1.28	39.9	35.1
		6-12	SL	57	33	10	51		1.45	25	23	2	ML	1.54	27.9	24.3
9	Tioga	0-6	SL	60	35	5		5	1.77					1.38	34.3	23.9
		6-12	SL	75	20	5	36		0.86	20**	Nonplastic		SM	1.46	29.6	16.8
10	Huntington	0-6	L	37*	48*	15*		10	4.05					1.28	41.2	32.7
		6-12	L	38	47	15	68		2.47	31	22	9	ML	1.49	30.9	25.2
11	Hagerstown	0-6	SiL	27	56	17		10	1.25					1.33	37.8	29.8
		6-12	SiL	25	54	21	82		0.86	26	18	8	CL	1.62	24.9	21.0
12	Hublersburg	0-6	SL	76	14	10		0	0.78					1.57	26.1	16.3
		6-12	SL	71	12	17	31		0.55	17	13	4	SM	1.69	21.7	15.9
13	Hublersburg	0-6	SL	75	17	8		10	1.25					1.36	36.4	18.6
		6-12	SL	74	17	9	30		0.95	14**	Nonplastic		SM	1.69	21.9	12.7
14	Wiltshire	0-6	SiL	30	58	12		10	3.62					1.34	36.3	27.3
		6-12	SiL	26	61	13	84		3.27	31	23	8	ML	1.24	42.6	32.1
15	Wiltshire	0-6	SiL	18	64	18		0	7.18					1.21	42.7	35.8
		6-12	SiL	20	58	22	89		1.65	33	22	11	CL	1.58	27.1	24.2
16	Andover	0-6	SiL	26	58	16		0	1.65					1.37	25.8	30.9
		6-12	SiL	22	60	18	83		1.45	28	20	8	CL	1.49	29.4	26.0
17	Lindside	0-6	L	39*	44*	17*		10	4.80					1.36	37.3	30.6
		6-12	L	37*	48*	15*	70*		4.91	41	26	15	ML	1.36	35.1	30.2
18	Elkins	0-6	SiL	16*	60*	24*		0	5.12					1.21	42.7	37.3
		6-12	SiL	13*	63*	24*	92*		4.53	43	30	13	ML	1.34	38.8	35.0
19	Elkins	0-6	L	46	44	10		0	4.15					1.30	42.1	35.6
		6-12	SL	58	31	11	49		3.54	25	24	1	SM	1.25	44.6	40.6
20	Atkins	0-6	L	33	49	18		0	2.08					1.38	35.0	29.4
		6-12	L	34	41	25	74		0.70	25	18	7	CL-ML	1.67	22.6	19.2
21	Guthrie	0-6	SiL	16	63	16		0	4.90					1.20	46.2	38.8
		6-12	SiL	11	67	22	93		2.75	40	25	15	CL	1.48	30.8	27.1
22	Duffield	0-6	SiL	20	54	26		5	3.41					1.27	40.0	29.7
		6-12	SiCL	15	49	36	89		1.65	41	24	17	CL	1.40	35.2	28.9
23	Duffield	0-6	SiL	17	61	22		5	1.65					1.46	30.9	26.6
		6-12	SiL	17	59	24	88		1.45	33	23	10	CL	1.47	30.7	25.6

(Continued)

* Adjusted value. ** Modified technique. †† Bulk density and moisture content values questionable.

Table B2b (Continued)

Site No.	Soil Series	Depths Sampled in.	Texture Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	USCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	USCS Class.	Bulk Density g/cc	Soil Moisture by Weight, % Saturation	.06 Atmosphere Tension
24	Pope	0-6	LS	79*	16*	5*		0	7.21					1.17††	47.3	25.0
		6-12	LS	75*	20*	5*	30*		3.47	NV		Nonplastic	SM	1.05††	57.5	35.6
25	Clymer	0-6	L	33	49	18		10	3.54					1.33	56.9	30.6
		6-12	L	32	48	20	71		2.08	32	21	11	CL	1.56	[illegible]	33.9
26	Clymer	0-6	SiL	28*	56*	16*		20	6.13					1.09	53.1	44.6
		6-12	SiL	27*	52*	21*	80*		2.68	34	23	11	CL	1.24	43.4	36.0
27	Gilpin	0-6	SiL	28	52	20		15	3.62					1.44	33.2	27.1
		6-12	SiL	28	52	20	78		1.77	32	22	10	CL	1.48	31.5	29.8
28	Ernest	0-6	L	36	47	17		0	3.27					1.33	41.6	35.9
		6-12	L	32	48	20	77		1.35	37	24	13	CL	1.43	33.1	29.2
29	Lickdale	0-6	L	42*	44*	14*		15	6.66					1.22	46.9	40.2
		6-12	L	42*	43*	15*	35*		4.72	35	23	12	CL	1.42	34.7	28.9
30	Ernest	0-6	SiL	20	61	19		0	3.62					1.17	48.6	40.0
		6-12	SiL	27	53	20	80		1.98	35	24	11	CL	1.42	33.6	29.3
31	Ernest	0-6	L	48	39	13		0	2.35					1.44	33.5	27.1
		6-12	L	48	36	16	59		1.25	26	19	7	CL-ML	1.60	25.1	20.8
32	Atkins	0-6	L	35	43	22		0	2.87					1.39	36.6	32.3
		6-12	L	35	43	22	74		2.75	34	24	10	ML	1.43	32.8	28.9
33	Philo	0-6	SiL	28	56	16		0	3.13					1.20	46.8	38.2
		6-12	SiL	25	55	20	83		2.87	38	25	13	ML	1.39	34.6	30.9
34	Brinkerton	0-6	CL	34*	38*	28*		5	6.88					0.67††	121.1	106.1
		6-12	L	47*	36*	17*	60*		4.84	44	26	18	CL	1.42††	37.6	33.6
35	Philo	0-6	L	41	46	3		0	5.34					1.23	52.3	40.6
		6-12	L	35	47	18	76		4.90	3[illegible]	25	12	ML	1.40	34.4	30.9
36	Holly	0-6	SiL	26	63	11		0	5.12					1.15	50.9	44.1
		6-12	SiL	21	61	18	89		4.60	40	26	14	ML	1.24	44.0	39.8
37	Holly	0-6	SiL	39	51	10		0	2.75					1.36	36.2	31.8
		6-12	SiL	33	55	12	80		2.35	30	23	7	ML	1.21	44.7	40.7
38	Holly	0-6	SiL	17*	70*	13*		0	4.70					1.30	39.1	33.5
		6-12	SiL	19	65	16	89		4.05	41	29	12	ML	1.18	46.3	40.8
39	Braceville	0-6	L	43	49	8		10	4.15					1.22	43.3	32.8
		6-12	L	40	46	14	70		2.60	25	21	4	CL-ML	1.40	32.8	26.2
40	Tioga	0-6	SiL	37	54	9		0	5.02					1.23	43.0	33.3
		6-12	SiL	34	52	14	80		4.34	29	25	4	ML	1.27	41.2	33.2
41	Tioga	0-6	SiL	32	60	8		0	4.34					1.19	45.7	37.9
		6-12	SiL	32	57	11	75		2.47	24	20	4	ML	1.38	34.3	28.2
42	Tioga	0-6	SL	47	48	5		0	4.15					1.24	42.2	33.6
		6-12	SiL	22	67	11	87		3.62	30	25	5	ML	1.43	43.4	35.1
43	Frenchtown	0-6	SiL	24	67	9		5	6.04					1.02	51.3	49.2
		6-12	SiL	23	66	11	87		5.12	45	34	11	ML	1.12	40.3	38.7
44	Unadilla	0-6	SiL	22	64	14		0	3.69					1.08	53.0	43.4
		6-12	SiL	22	64	14	88		0.95	27	21	6	CL-ML	1.37	37.0	33.9
45	Unadilla	0-6	SiL	40	51	9		0	2.75					1.07	51.4	40.3
		6-12	SiL	20	65	15	92		1.55	27	22	5	ML	1.18	34.9	31.5
46	Tyler	0-6	Muck	25*	48*	27*		0	24.74					0.37††	109.9	89.1
		6-12	SiCL	16*	51*	33*	99*		9.76	53	40	13	OH	0.97††	55.5	59.7

(Continued)

* Adjusted value. †† Bulk density and moisture content values questionable. NV No value.

Table B2b (Continued)

Site No.	Soil Series	Depths Sampled in.	Texture Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	USCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	USCS Class.	Bulk Density g/cc	Soil Moisture by Weight, % Saturation	.06 Atmosphere Tension
47	Chenango	0-6	SiL	35	54	11		5	5.46					0.90	72.4	51.0
		6-12	SiL	35	54	11	70		4.15	34	27	7	ML	1.18	43.8	35.6
48	Unadilla	0-6	SiL	29	60	11		0	3.62					1.10	51.9	46.1
		6-12	SiL	32	56	12	86		1.45	25	20	5	CL-ML	1.40	32.7	29.2
49	Lakemont	0-6	SiCL	14	53	33		0	6.40					1.12	51.0	46.4
		6-12	SiC	10	41	49	97		3.41	57	27	30	CH	1.43	33.5	30.0
50	Lakemont	0-6	SiL	16	64	20		0	4.34					1.34	37.2	33.0
		6-12	SiL	13	64	23	95		2.23	38	23	15	CL	1.44	32.7	29.0
52	Schoharie	0-6	SiL	21	54	25		0	5.34					1.21	43.9	37.9
		6-12	SiC	12	46	42	94		1.65	46	24	22	CL	1.48	32.0	29.1
53	Junius	0-6	L	48	43	9		0	4.70					1.35	35.4	29.2
		6-12	L	50	42	8	69		2.60	25	21	4	CL-ML	1.48	30.0	25.6
54	Junius	0-6	L	48	45	7		0	6.04					1.25	42.6	35.8
		6-12	L	48	45	7	60		2.79	NV	Nonplastic		ML	1.44	31.2	27.3
55	Fulton	0-6	L	42	49	9		0	4.70					1.37	34.3	29.1
		6-12	L	44	45	11	68		3.13	27	19	8	CL	1.49	30.2	26.6
56	Collamer	0-6	SiL	28	63	9		0	4.90					1.33	41.6	27.0
		6-12	SiL	24	59	17	85		3.00	28**	19	9	CL	1.40	37.8	27.7
57	Dunkirk	0-6	SL	50	45	5		0	5.02					1.28	39.8	31.9
		6-12	L	45	47	8	77		1.88	23**	20	3	ML	1.45	30.9	25.6
58	Berrien	0-6	SL	70	27			0	3.62					1.22	41.9	31.2
		6-12	LS	78	17	5	49		1.15	21**	Nonplastic		SM	1.52	26.6	22.4
59	Ovid	0-6	SL	56	41	3		0	6.40					1.06	54.9	42.1
		6-12	SL	54	39	7	62		4.39	28	27	1	ML	1.16	47.6	41.1
60	Ovid	0-6	SiL	27	62	11		0	5.68					1.13	50.5	45.0
		6-12	SiL	31	57	12	80		5.68	49	35	14	ML	1.08	53.2	47.8
61	Eel	0-6	SL	50	45	5		0	5.80					0.99	61.0	51.1
		6-12	L	44	48	8	74		5.34	34	30	4	ML	1.36	36.7	32.3
62	Tioga	0-6	SiL	31*	60*	9*			4.15					1.21	44.6	31.4
		6-12	SiL	40	52	8	76		3.54	30**	Nonplastic		ML	1.26	40.6	29.9
63	Tioga	0-6	SiL	33	55	12		0	4.90					1.27	41.9	30.7
		6-12	L	42	40	18	84		1.77	31	22	9	CL	1.38	35.4	26.1
64	Tioga	0-6	SiL	41	52	7		0	5.80					1.00	62.8	48.8
		6-12	SL	55	37	8	63		2.23	27**	26	1	ML	1.27	41.6	34.0
65	Huntington	0-6	L	52	41	7		0	5.92					0.96	67.2	50.4
		6-12	SL	53	37	10	58		4.15	32	27	5	ML	1.14	50.1	34.0
66	Huntington	0-6	L	49*	40*	11*		0	4.05					0.96	63.0	43.4
		6-12	SL	66	25	9	46		2.60	22**	22	0	SM	1.21	44.6	28.8
67	Melvin	0-6	SiL	17	64	19		0	3.41					1.33	38.6	32.4
		6-12	SiL	14	61	25	92		1.25	37	24	13	CL	1.40	36.0	32.4
68	Wheeling	0-6	SiCL	20	57	23		0	2.47					1.35	36.9	29.5
		6-12	SiCL	20	57	23	88		1.25	30	21	9	CL	1.46	31.4	26.8
69	Dunmore	0-6	SiL	13	64	23		0	4.15					1.29	41.0	34.6
		6-12	SiCL	12	51	37	92		2.47	50	24	26	CL	1.54	29.0	26.0
70	Araby	0-6	SiL	14	72	14		0	3.41					1.36	36.4	31.6
		6-12	SiL	12	69	19	93		3.41	37	25	12	ML	1.41	35.3	31.1
71	Galen	0-6	SL	66	31	3		0	4.52					1.23	27.8	30.9
		6-12	SL	67	30	3	59		3.69	26**	26	0	ML	1.36	34.6	27.6

(Continued)

* Adjusted value. ** Modified technique. NV No value.

Table B2b (Continued)

Site No.	Soil Series	Depths Sampled in.	Texture Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	USCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	USCS Class.	Bulk Density g/cc	Soil Moisture by Weight, % Saturation	.06 Atmosphere Tension
72	Brockport	0-6	SiL	33	50	17		5	6.04					1.23	43.9	37.4
		6-12	L	35	45	20	77		4.70	43	24	19	CL	1.51	28.7	25.4
73	Madeland	0-6	L	51	40	9		5	5.13					1.40	32.9	24.7
		6-12	SL	53	32	15	73		4.15	27	20	7	CL-ML	1.58	25.2	20.3
74	Lockport	0-6	CL	25	45	30		0	5.56					1.39	.9	30.0
		6-12	SiL	20	61	19	92		3.13	44	23	21	CL	1.56	28.0	25.4
75	Hilton	0-6	SiL	35	54	11		5	5.80					1.26	41.8	32.7
		6-12	SiL	34	52	14	80		4.52	28	20	8	CL	1.53	28.8	23.7
76	Romulus	0-6	SiL	34	51	15		0	3.27					1.57	27.7	23.8
		6-12	CL	26	46	28	87		1.05	32	15	17	CL	1.74	21.5	19.0
77	Colwood	0-6	SL	53*	42*	5*		0	14.84					1.06	54.2	43.3
		6-12	SL	53*	42*	5*	60*		12.99	NV	Nonplastic		OL	1.16	46.6	40.8
78	Muck	0-6	Muck	22*	53*	25*		0	14.65					0.70††	103.4	90.9
		6-12	Muck	22*	53*	25*	85*		11.45	NV	Nonplastic		OL	0.83††	83.2	76.5
79	Wolcottsburg	0-6	SiL	14	68	18		0	3.51					1.29	43.1	36.5
		6-12	SiL	7	67	26	95		0.70	37	25	12	ML	1.60	28.1	25.1
80	Tonawanda	0-6	SiL	15	72	13		0	6.60					1.10	53.9	43.7
		6-12	SiL	15	72	13	94		5.56	53	35	18	MH	1.24	42.9	37.4
101	Merrimac	0-6	SL	55	42	3		0	4.05					1.19	46.4	38.7
		6-12	SL	52	43	5	60		1.65	26**	Nonplastic		ML	1.37	35.8	27.6
102	Rumney	0-6	SL	50	45	5		0	3.96					1.07	57.6	48.4
		6-12	SL	61	33	6	56		1.25	25**	Nonplastic		ML	1.28	41.2	33.1
104	Cheshire	0-6	SiL	41	50	9		0	5.34					1.09	53.5	38.7
		6-12	L	41	49	10	67		2.87	25	21	4	ML	1.32	37.6	29.0
105	Cheshire	0-6	SL	57	37	8		10	3.27					1.39	34.1	24.5
		6-12	SL	54	38	8	55		3.00	23	20	3	ML	1.44	32.2	26.9
106	Ludlow	0-6	SL	62*	30*	8*		0	4.52					1.25	43.5	30.8
		6-12	SL	58	33	9	49		2.23	24	18	6	SM	1.49	29.1	21.4
107	Ludlow	0-6	L	48	45	7		0	3.96					1.06	57.4	32.9
		6-12	L	50	29	11	60		1.98	22	17	5	CL-ML	1.36	36.2	24.5
108	Elmwood	0-6	SiL	21	67	12		0	4.05					1.12	52.9	44.4
		6-12	SiL	19	67	14	89		2.60	32	29	3	ML	1.39	36.5	32.0
109	Chalker	0-6	SiL	32	59	9		0	4.34					1.18	50.1	43.9
		6-12	SiL	34	55	11	82		2.23	27	27	0	ML	1.41	35.4	31.6
110	Elmwood	0-6	L	45	45	10		0	3.62					1.19	48.3	39.4
		6-12	L	37	38	25	73		1.05	32	21	11	CL	1.49	31.5	27.8
111	Hadley	0-6	SiL	30	67	3		0	2.75					1.32	38.9	33.6
		6-12	SiL	26	67	7	89		2.23	23	23	0	ML	1.36	35.9	31.4
112	Carver	0-6	LS	84	12	4		0	1.77					1.07	60.8	28.7
		6-12	LS	84	12	4	22		0.86	16**	Nonplastic		SM	1.48	31.3	13.2
113	Merrimac	0-6	SiL	59	36	5		0	3.41					1.08	54.1	40.5
		6-12	SL	56	40	4	57		1.05	22**	Nonplastic		ML	1.27	38.8	28.0
114	Merrimac	0-6	LS	75	21	4		0	1.88					1.53	28.3	19.9
		6-12	LS	78	18	4	30		1.45	16**	Nonplastic		SM	1.56	26.7	19.1
115	Merrimac	0-6	SL	71	24	5		0	1.98					1.45	31.0	22.0
		6-12	SL	70	25	5	41		1.05	18**	Nonplastic		SM	1.65	24.0	18.9

(Continued)

* Adjusted value. ** Modified technique. †† Bulk density and moisture content values questionable. NV No value.

Table B2b (Continued)

Site No.	Soil Series	Depths Sampled in.	Texture Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	USCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	USCS Class.	Bulk Density g/cc	Soil Moisture by Weight, % Saturation	.05 Atmosphere tension
116	Infield	0-6	SiL	41	54	5		0	4.90					0.68††	112.7	73.9
		6-12	SiL	30	64	6	85		2.23	31**	Nonplastic		ML	1.12††	51.4	37.9
117	Infield	0-6	SL	47	51	4		10	3.00					1.30	40.4	30.1
		6-12	SiL	45	50	5	72		1.98	24**	Nonplastic		ML	1.4.	34.8	27.1
118	Gloucester	0-6	SL	69	27	4		8	1.77					1.23	46.0	26.8
		6-12	SL	69	27	[illegible]	45		1.45	20**	Nonplastic		SM	1.57	27.1	19.1
119	Merrimac	0-6	SL	61	35	4		0	4.70					1.15	50.1	32.2
		6-12	SL	64	32	4	47		2.75	23**	17	6	SC-SM	1.54	28.5	20.2
120	Walpole	0-6	SL	56	40	4		5	5.02					1.08††	55.6	39.9
		6-12	SL	60	32	8	52		3.69	25	25	0	ML	1.37*†	36.9	29.2
121	Agawam	0-6	LS	80	16	4		0	1.77					1.42	35.0	23.1
		6-12	LS	80	16	4	35		1.45	18**	Nonplastic		SM	1.55	27.9	22.6
122	Merrimac	0-6	LS	81	15	4		0	3.13					1.36	38.3	21.3
		6-12	LS	81	15	4	25		2.23	21**	Nonplastic		SM	1.51	30.3	16.4
123	Ondawa	0-6	S	87	11	2		0	2.35					1.44	34.7	16.0
		6-12	S	87	11	2	21		2.23	24**	Nonplastic		SM	1.41	35.5	18.4
124	Rumney	0-6	SL	69	26	5		0	3.77					1.13	51.0	41.7
		6-12	SL	69	26	5	49		1.33	26**	Nonplastic		SM	1.25	41.0	34.6
125	Woodbridge	0-6	SL	63	33	4		0	2.60					1.38	41.3	34.8
		6-12	SL	67	28	5	47		1.65	22**	Nonplastic		SM	1.57	28.7	23.3
126	Woodbridge	0-6	SiL	30	63	7		0	5.34					1.13	54.3	42.8
		6-12	SL	48	47	5	65		3.27	32**	Nonplastic		ML	1.31	43.5	36.9
127	Woodbridge	0-6	SL	51*	44*	5*		0	7.18					1.04	64.6	49.4
		6-12	SL	52*	44*	4*	60		5.39	NV	Nonplastic		ML	1.28	43.3	33.9
128	Buxton	0-6	SL	66	22	12		0	2.87					1.36††	36.5	29.2
		6-12	L	50	28	22	56		1.25	26	19	7	CL-ML	1.53††	29.0	24.3
129	Suffield	0-6	SiL	23	66	11		0	4.52					1.25	42.7	34.9
		6-12	SiL	22	64	14	85		3.77	29	23	6	ML	1.34	37.3	32.2
130	Melrose	0-6	SL	53	43	4		0	5.34					0.89	73.7	51.6
		6-12	SL	50	44	6	62		2.23	23	23	0	ML	1.16	49.7	37.9
131	Merrimac	0-6	LS	81	16	3		0	4.04					1.16	40.9	23.2
		6-12	LS	85	12	3	22		2.60	17**	Nonplastic		SM	1.45	29.9	13.9
132	Merrimac	0-6	LS	85	12	3		0	2.23					1.20	44.7	22.7
		6-12	S	87	10	3	21		1.98	18**	Nonplastic		SM	1.40	32.7	22.1
133	Merrimac	0-6	S	93	5	2		0	3.54					1.30	39.6	13.2
		6-12	S	96	2	2	7		2.87	22**	Nonplastic		SM	1.43	32.9	10.6
134	Scarboro	0-6	SiL	44	53	3		0	6.28					1.04	64.7	56.5
		6-12	SL	70	25	5	47		4.70	26**	Nonplastic		SM	1.35	39.0	35.7
135	Merrimac	0-6	LS	84	14	2		0	3.27					1.21	45.4	24.1
		6-12	S	87	10	3	23		1.88	19**	Nonplastic		SM	1.45	37.0	17.7
136	Merrimac	0-6	S	87	12	1		0	3.62					1.16	48.8	22.3
		6-12	S	90	8	2	20		1.98	20**	Nonplastic		SM	1.35	38.1	16.5
137	Walpole	0-6	SL	61*	35*	4*		0	4.54					0.99††	70.9	58.4
		6-12	SL	61*	35*	4*	45*		4.80	NV	Nonplastic		SM	1.67††	24.2	19.0
138	Merrimac	0-6	SL	67	30	3		10	6.04					1.03	56.3	44.4
		6-12	SL	66	30	4	47		3.77	28**	Nonplastic		SM	1.15	54.4	38.0

(Continued)

* Adjusted value. ** Modified technique. †† Bulk density and moisture content values questionable. NV No value.

Table B2b (Concluded)

Site No.	Soil Series	Depths Sampled in.	Texture Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	USCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	USCS Class.	Bulk Densit, g/cc	Soil Moisture by Weight, % Saturation	.06 Atmosphere Tension
139	Rumney	0-6	LS	84	14	2		15	3.86					1.42††	34.1	21.0
		6-12	S	88	9	3	14		1.98	NV	Nonplastic		SM	1.70††	22.8	14.7
140	Acton	0-6	SL	65	33	2		0	4.10					1.10	58.7	42.4
		6-12	SL	60	36	4	63		3.62	29**	Nonplastic		ML	1.09	54.3	47.0
141	Sudbury	0-6	SL	70	27	3		0	5.46					0.99	63.4	51.0
		6-12	SL	55	41	4	65		3.96	32**	Nonplastic		ML	0.95	64.7	58.3
142	Colton	0-6	SL	62*	34*	4*		0	5.51					0.85	70.4	50.4
		6-12	SL	62*	34*	4*	45*		5.48	NV	Nonplastic		SM	1.26	43.1	30.6
143	Leicester	0-6	SiL	34*	60*	6*		0	4.38					1.19	47.6	35.9
		6-12	SiL	34*	60*	6*	70*		3.01	NV	Nonplastic		ML	1.47	31.9	27.1
144	Agawam	0-6	SiL	10*	75*	7*		0	3.27					1.18	46.5	40.3
		6-12	Si	10	81	9	92		3.13	NV	Nonplastic		ML	1.34	43.2	38.4
145	Winooski	0-6	SL	60	35	5		0	2.23					1.22	45.0	37.0
		6-12	SiL	40	56	4	81		2.50	31**	31	0	ML	1.28	43.8	38.0
146	Buxton	0-6	SiL	15	72	13		0	1.33					1.26	43.3	37.6
		6-12	SiL	11	73	16	92		0.66	27**	21	6	CL-ML	1.39	36.0	32.5
147	Paxton	0-6	L	45*	44*	11*		0	2.60					1.47	49.7	38.9
		6-12	SiL	9*	73*	18*	97*		0.78	28	28	0	ML	1.43	33.8	28.6
148	Sudbury	0-6	SL	50	46	4		0	4.15					1.11††	58.1	45.2
		6-12	SiL	43	51	6	68		3.62	32	30	2	ML	1.35††	37.0	31.0
149	Scarboro	0-6	SL	48*	47*	5*		0	6.20					0.86	78.7	59.9
		6-12	SL	48*	47*	5*	50*		3.15	NV	Nonplastic		ML	0.94	69.0	62.6
150	Undawa	0-6	SL	54*	40*	6*		0	5.72					0.99	59.5	46.8
		6-12	SL	54*	40*	6*	49*		6.11	NV	Nonplastic		SM	0.87	82.2	73.2
151	Hudson	0-6	SiL	9	75	16		0	3.96					1.23	47.2	40.3
		6-12	SiL	7	71	22	96		2.47	38	Nonplastic		ML	1.40	35.4	32.2
152	Rhinebeck	0-6	SiL	20	62	18		0	5.92					1.28	43.8	33.0
		6-12	SiCL	13	55	32	91		2.23	31**	20	11	CL	1.46	34.2	29.6
153	Genesee	0-6	L	45	42	13		0	5.46					1.30	41.2	31.8
		6-12	L	45	42	13	68		3.62	27**	19	8	CL	1.55	28.4	21.1
154	Colonie	0-6	SL	49	48	3		0	1.88					1.35	38.4	29.5
		6-12	SL	55	38	7	69		1.05	19	19	0	ML	1.53	31.5	24.3
155	Swanton	0-6	L	40	49	11		0	1.45					1.29	56.1	34.1
		6-12	SL	57	39	4	64		0.86	20**	Nonplastic		ML	1.53	29.1	23.0
156	Atherton	0-6	SiL	36	51	13		0	5.24					1.15††	53.0	42.9
		6-12	L	48	39	13	63		1.98	22	18	4	ML	1.55††	30.7	24.0
158	Albia	0-6	L	51	39	10		0	4.90					1.10	47.1	27.1
		6-12	SL	53	33	14	56		3.54	23	17	6	CL-ML	1.45	32.3	21.6

* Adjusted value. ** Modified technique. †† Bulk density and moisture content values questionable. NV No value.

Table B2c

Soil Properties of Strength-moisture Survey Sites

Lake States Region

Site No.	Soil Series	Depths Sampled in.	Texture Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	USCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	USCS Class.	Bulk Density g/cc	Soil Moisture by Weight, % Saturation	.06 Atmosphere Tension
1	Glouster	0-6	SiL	34	57	9		4	3.27					1.35	34.1	29.3
		6-12	SiL	35	52	13	74		0.78	22	18	4	CL-ML	1.40	34.2	28.0
2	Plainfield	0-6	LS	83	14	3		1	3.27					1.31	33.7	20.3
		6-12	S	89	8	3	13		1.25	16**	Nonplastic		SM	1.56	21.1	11.6
3	Waukesha	0-6	LS	86	11	3		0	3.27					1.21	41.6	22.3
		6-12	S	88	8	4	17		0.86	15**	Nonplastic		SM	1.34	33.4	13.5
4	Genesee	0-6	L	50	41	9		0	3.62					1.35	30.9	21.2
		6-12	SL	53	35	12	54		1.65	24	16	8	CL	1.56	22.7	15.0
5	Genesee	0-6	LS	81	15	4		3	1.65					1.21	37.8	29.1
		6-12	S	89	8	3	14		0.78	15**	Nonplastic		SM	1.48	25.8	17.9
6	Waukesha	0-6	LS	88	8	4		1	2.36					1.48	26.2	16.3
		6-12	LS	88	8	4	13		1.25	NV	Nonplastic		SM	1.64	20.3	10.7
7	Coloma	0-6	LS	84	13	3		1	1.88					1.34	33.5	16.9
		6-12	LS	87	9	4	17		0.55	11**	Nonplastic		SM	1.55	23.1	12.0
8	Coloma	0-6	LS	83	13	4		1	2.60					1.22	41.8	30.0
		6-12	LS	83	13	4	19		0.70	NV	Nonplastic		SM	1.47	27.0	10.0
9	Waukesha	0-6	LS	82	15	3		1	1.88					1.33	32.1	16.4
		6-12	S	88	8	4	16		0.78	11**	Nonplastic		SM	1.57	22.3	12.7
10	Miami	0-6	LS	79	17	4		0	0.95					1.47	28.6	12.0
		6-12	LS	77	19	4	29		0.86	14**	Nonplastic		SM	1.59	22.0	12.8
11	Miami	0-6	SiL	17	74	9		0	2.75					1.23	37.8	30.7
		6-12	SiL	13	74	13	97		1.05	26	21	5	CL-ML	1.37	34.0	25.7
12	Miami	0-6	SL	51	42	7		0	3.27					1.27	36.7	28.7
		6-12	L	50	38	12	63		0.78	20	15	5	CL-ML	1.48	26.9	21.0
13	Carrington	0-6	L	49	43	8		2	2.87					1.44	28.2	21.6
		6-12	L	50	43	7	59		1.77	20	15	5	CL-ML	1.49	27.9	22.3
14	Carrington	0-6	SiL	12	72	16		1	5.56					1.22	44.2	38.9
		6-12	SiL	11	77	12	96		5.56	43	28	15	CL	1.08	51.0	38.1
15	Janesville	0-6	SiL	22	55	23		4	2.47					1.29	42.1	27.9
		6-12	SiL	32	56	12	72		2.35	27	18	9	CL	1.36	35.8	25.6
16	Edgerton	0-6	SiL	13	75	12		0	2.87					1.26	40.8	33.5
		6-12	SiL	9	80	11	96		1.98	30	23	7	CL	1.26	47.2	40.3
17	Afton	0-6	LS	81	15	4		0	1.25					1.62	20.5	12.3
		6-12	LS	85	11	4	23		0.78	12**	Nonplastic		SM	1.53	23.2	10.4
18	O'Neill	0-6	SiL	25	56	19		0	5.34					1.26	42.3	32.9
		6-12	SiL	25	60	15	82		5.24	47	28	19	ML	1.26	42.9	34.7
19	O'Neill	0-6	SiL	32	51	17		0	6.04					1.11	48.7	37.6
		6-12	L	45	43	12	59		4.70	33**	20	13	CL	1.20	41.3	34.6
20	Omarga	0-6	SL	55	34	11		0	3.77					1.14	41.4	33.7
		6-12	SL	55	38	7	52		2.87	22	15	7	CL-ML	1.48	24.6	24.0
22	Miami	0-6	SiL	15	75	10		0	3.41					1.22	40.6	30.5
		6-12	SiL	10	72	13	96		0.78	27	20	7	CL-ML	1.22	39.3	28.0
23	Muscatine	0-6	SiL	20	72	8		0	5.12					1.30	36.3	32.4
		6-12	SiL	18	72	10	89		4.15	38	24	14	CL	1.31	34.9	29.6
24	Sable	0-6	SiL	20	67	13		0	5.56					1.09	50.6	42.7
		6-12	SiL	18	64	18	91		5.02	49	28	21	CL	1.34	34.7	32.5

(Continued)

** Modified technique. NV No value.

Table B2c (Continued)

Site No.	Soil Series	Depths Sampled in.	Texture Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	USCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	USCS Class.	Bulk Density g/cc	Soil Moisture by Weight, % Saturation	.06 Atmosphere Tension
25	Sable	0-6	SiL	16	73	11		0	5.34					1.20	42.6	38.3
		6-12	SiL	11	69	20	97		4.70	48	29	19	ML	1.18	42.8	37.5
26	Tama	0-6	SiL	14	73	13		0	5.12					1.06	49.7	45.6
		6-12	SiL	10	75	15	97		3.77	46	29	17	ML	1.20	40.9	35.0
27	Huntsville	0-6	SL	59	33	8		0	2.87					1.54	25.7	20.4
		6-12	SiL	56	34	10	54		2.08	23	16	7	CL-ML	1.64	22.6	17.3
28	Harpster	0-6	SiL	15	67	18		0	5.34					1.15	44.9	31.4
		6-12	SiL	16	70	14	94		4.90	44	27	17	ML	1.21	40.7	27.9
29	Hartsburg	0-6	SiL	29	60	11		0	4.15					1.36	34.1	31.8
		6-12	SiL	24	53	23	84		2.87	37	21	16	CL	1.50	27.4	26.1
30	Hagner	0-6	LS	80	16	4		0	1.77					1.52	26.5	9.4
		6-12	LS	86	11	3	19		0.70	16**	Nonplastic		SM	1.59	23.3	8.1
31	Muscatine	0-6	SiL	13	71	16		0	3.27					1.21	45.2	37.8
		6-12	SiL	10	74	16	99		1.45	35	23	12	CL	1.38	35.4	29.5
34	Clinton	0-6	SiL	15	73	12		0	2.75					1.32	35.1	31.1
		6-12	SiL	10	75	15	99		1.45	30	23	7	CL	1.29	37.6	31.8
35	Genesee	0-6	SiL	20	69	11		0	3.41					1.40	33.6	30.9
		6-12	SiL	10	73	17	98		2.47	39	25	14	CL	1.44	30.6	29.6
36	Fayette	0-6	SL	67	27	6		0	1.65					1.45	26.3	22.6
		6-12	SL	67	24	9	41		1.55	16**	Nonplastic		SM	1.50	22.7	18.3
37	Clinton	0-6	SiL	13	64	23		0	3.62					1.34	36.4	29.8
		6-12	SiCL	12	55	33	93		2.35	45	23	22	CL	1.34	39.1	35.5
38	Fayette	0-6	SiL	14	73	13		2	4.80					1.38	36.4	30.7
		6-12	SiL	10	73	17	100		2.87	36	23	13	CL	1.40	39.1	34.3
39	Dubuque	0-6	SiL	16	69	15		3	2.75					1.34	35.0	30.6
		6-12	SiL	9	70	21	99		0.95	34	21	13	CL	1.35	35.6	27.9
40	Dodgeville	0-6	SiL	13	71	16		0	2.08					1.33	35.0	31.6
		6-12	SiL	9	67	24	99		1.33	39	21	18	CL	1.30	35.6	30.1
41	Clinton	0-6	SiL	23	67	10		0	3.96					1.35	34.8	30.6
		6-12	SiL	10	76	14	98		2.35	36	24	12	CL	1.35	36.0	31.1
42	Tama	0-6	SiL	14	77	9		0	6.04					1.29	38.8	34.9
		6-12	SiL	10	75	15	98		4.52	42	26	16	CL	1.29	41.5	35.8
43	Dubuque	0-6	SiL	18	76	6		1	2.75					1.27	39.0	32.6
		6-12	Si	13	80	7	96		2.08	25**	Nonplastic		ML	1.22	39.7	34.4
44	Boone	0-6	S	91	5	4		0	1.55					1.24	39.6	25.2
		6-12	S	94	4	2	11		0.38	12**	Nonplastic		SM	1.52	25.5	5.8
45	Plainfield	0-6	LS	75	21	4		0	0.95					1.44	28.2	15.1
		6-12	S	91	6	3	10		0.55	10**	Nonplastic		SM	1.51	20.7	6.9
46	Union	0-6	SiL	18	72	10		0	2.35					1.29	35.2	32.0
		6-12	SiL	12	72	16	97		0.70	27	22	5	CL-ML	1.39	31.6	27.9
47	Boone	0-6	SL	70	24	6		0	2.35					1.54	23.4	19.4
		6-12	SL	73	20	7	31		1.55	15**	Nonplastic		SM	1.58	22.4	15.4
48	Boone	0-6	SiL	24	65	11		0	3.13					1.39	31.9	24.2
		6-12	SiL	16	73	11	91		3.13	27	21	6	CL-ML	1.27	37.8	32.1
49	Vesper	0-6	SL	52	44	4		2	2.50					1.37	36.2	25.7
		6-12	SL	54	36	10	51		1.05	16	14	2	ML	1.46	27.6	22.5
50	Union	0-6	SiL	25	64	11		1	3.00					1.37	34.7	27.2
		6-12	SiL	26	56	18	79		0.55	26	19	7	CL-ML	1.43	30.7	25.4

(Continued)

** Modified technique.

Table B2c (Continued)

Site No.	Soil Series	Depths Sampled in.	Texture Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	USCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	USCS Class.	Bulk Density g/cc	Soil Moisture by Weight, % Saturation	.06 Atmosphere Tension
51	Spencer	0-6	SiL	25	65	10		2	4.70					1.12	45.6	35.8
		6-12	SiL	19	67	14	89		2.47	32	26	6	ML	1.22	39.5	33.8
52	Spencer	0-6	SiL	21	70	9		3	5.12					1.20	42.4	36.4
		6-12	SiL	12	67	21	95		2.08	37	22	15	CL	1.27	39.0	31.5
53	Gloucester	0-6	SiL	40	53	7		4	3.62					1.28	34.2	29.7
		6-12	SiL	37	56	7	71		1.45	21**	Nonplastic		ML	1.33	34.1	27.3
54	Gloucester	0-6	SL	67	29	4		8	3.96					0.98	56.3	34.8
		6-12	SL	71	25	4	29		0.86	20**	Nonplastic		SM	1.20	41.4	31.4
55	Merrimack	0-6	SiL	26	67	7		0	3.77					1.21	41.2	35.6
		6-12	SiL	20	72	8	86		2.60	23	21	2	ML	1.27	38.0	32.4
56	Gloucester	0-6	SiL	22	68	10		5	3.41					1.25	42.0	35.3
		6-12	SiL	20	69	11	83		1.25	24	21	3	ML	1.26	38.6	34.2
58	Fayette	0-6	SiL	14	72	14		0	3.54					1.30	38.6	31.5
		6-12	SiL	10	64	26	99		0.55	37	22	15	CL	1.46	29.7	26.0
59	Tama	0-6	SiL	13	71	16		2	3.77					1.20	41.7	35.3
		6-12	SiL	10	76	14	98		3.77	41	26	15	ML	1.33	38.3	34.8
60	Dubuque	0-6	L	39	49	12		0	2.87					1.28	----	29.0
		6-12	L	47	39	14	59		1.45	24	15	9	CL	1.38	----	29.0
61	O'Neill	0-6	SL	69	27	4		0	5.80					1.21	35.5	27.8
		6-12	SL	68	28	4	35		3.96	21	17	4	SM	1.36	30.9	24.8
62	Carrington	0-6	L	49	43	8		0	4.90					1.10	50.1	40.2
		6-12	L	47	39	14	61		4.70	35	23	12	CL	1.32	35.6	31.3
63	Plainfield	0-6	SL	76	18	6		0	1.45					1.47	26.8	20.5
		6-12	SL	70	20	10	34		0.95	15	13	2	SM	1.48	25.9	19.2
64	Clyde	0-6	L	37	47	16		0	4.15					1.34	34.0	30.9
		6-12	L	37	47	16	68		1.05	30	16	14	CL	1.49	28.0	23.8
66	Carrington	0-6	L	40	45	15		0	4.70					1.28	37.0	32.2
		6-12	L	32	45	23	74		2.23	39	16	23	CL	1.37	32.6	27.7
67	Carrington	0-6	SL	61	34	5		0	5.34					1.28	34.0	29.6
		6-12	SL	55	36	9	49		2.23	22	16	6	SM-SC	1.48	29.0	24.3
68	Carrington	0-6	SL	78	13	9		0	1.25					1.46	----	11.4
		6-12	LS	78	17	5	28		0.86	15**	Nonplastic		SM	1.54	----	10.1
69	Clinton	0-6	SiL	18	72	10		0	3.96					1.09	44.0	39.7
		6-12	SiL	16	70	14	97		1.65	27	22	5	CL-ML	1.32	34.8	30.2
70	Tama	0-6	SiL	14	67	19		0	4.05					1.30	35.7	32.4
		6-12	SiL	10	71	19	98		3.77	45	27	18	ML	1.22	38.2	33.6
71	Tama	0-6	SiL	13	72	15		0	5.12					1.07	48.4	38.5
		6-12	SiL	10	72	18	96		3.96	44	26	18	CL	1.10	46.3	39.1
72	Muscatine	0-6	SiL	12	69	19		0	4.15					1.26	37.4	32.4
		6-12	SiL	9	70	21	97		2.75	45	24	21	CL	1.13	45.3	35.3
73	Wabash	0-6	SiL	19	63	18		0	5.80					1.02	54.2	41.7
		6-12	SiL	24	62	14	85		5.34	55	34	21	MH	1.01	56.9	46.2
74	Carrington	0-6	SiL	33	53	14		0	5.24					1.20	42.5	34.5
		6-12	SiL	30	53	17	77		2.87	35	21	14	CL	1.26	35.4	28.3
75	Muscatine	0-6	SiL	14	70	16		0	4.60					1.31	35.3	30.0
		6-12	SiL	8	69	23	98		3.62	41	24	17	CL	1.36	34.9	28.7
76	Wabash	0-6	SiL	11	65	24		0	5.56					1.11	47.4	39.9
		6-12	SiL	11	68	21	95		4.90	47	27	20	CL	1.26	39.1	33.0

(Continued)

** Modified technique.

Table B2c (Continued)

Site No.	Soil Series	Depths Sampled in.	Texture Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	USCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	USCS Class.	Bulk Density g/cc	Soil Moisture by Weight, % Saturation	.06 Atmosphere Tension
77	Shelby	0-6	SiL	20	64	16		0	5.12					1.16	43.1	36.1
		6-12	SiL	20	61	19	88		3.54	39	22	17	CL	1.22	39.9	31.0
78	Sharpsburg	0-6	SiL	9	70	21		0	5.12					1.26	37.1	30.2
		6-12	SiL	10	65	25	98		4.15	44	25	19	CL	1.24	37.9	31.5
79	Sharpsburg	0-6	SiL	15	72	13		0	5.56					1.14	45.6	39.8
		6-12	SiL	10	70	20	97		4.05	45	26	19	CL	1.22	41.3	34.9
80	Shelby	0-6	SiL	17	59	24		0	4.52					1.34	35.3	31.4
		6-12	SiC	7	47	46	97		3.69	51	22	29	CH	1.44	31.7	31.0
81	Winterset	0-6	SiL	11	70	19		0	5.24					1.21	40.9	34.5
		6-12	SiL	9	67	24	97		3.62	45	23	22	CL	1.36	34.5	26.5
82	Tama	0-6	SiL	11	64	25		0	2.75					1.35	35.3	34.1
		6-12	SiCL	6	65	29	99		0.46	47	21	26	CL	1.46	30.6	29.7
83	Shelby	0-6	L	38	43	19		0	2.60					1.36	34.9	32.2
		6-12	CL	33	38	29	75		1.33	41	21	20	CL	1.43	31.7	29.9
84	Winterset	0-6	SiL	19	66	15		0	4.52					1.21	40.6	38.2
		6-12	SiL	15	67	18	92		4.70	47	28	19	ML	1.19	42.4	39.1
85	Unclassified	0-6	SiCL	7	57	36		0	2.23					1.02	53.6	45.7
		6-12	SiCL	11	58	31	97		1.05	52	22	30	CH	1.31	38.5	30.7
86	Shelby	0-6	SiL	12	65	23		0	1.65					1.34	36.1	29.5
		6-12	SiL	8	67	25	99		0.07	43	21	22	CL	1.32	37.0	32.3
87	Tama	0-6	SiL	11	70	19		0	3.62					1.30	35.4	31.4
		6-12	SiL	11	64	25	91		2.60	40	23	17	CL	1.29	37.2	32.9
88	Wabash	0-6	L	41	50	9		0	3.77					1.[illegible]	54.0	43.2
		6-12	SiL	10	67	23	98		3.96	48	27	21	CL	1.[illegible]	53.5	43.2
89	Marshall	0-6	SiL	13	68	19		0	4.70					1.13	46.9	39.1
		6-12	SiL	7	72	21	100		0.86	43	25	18	CL	1.08	50.7	40.2
90	Storden	0-6	SiL	33	50	17		0	4.70					1.21	41.2	37.0
		6-12	L	30	48	22	76		1.45	33	16	17	CL	1.38	32.6	28.9
91	O'Neill	0-6	SiL	39	51	10		0	5.12					1.10	51.3	36.7
		6-12	SiL	31	44	17	75		3.[illegible]	34	20	14	CL	1.27	38.6	30.5
92	Webster	0-6	SiL	32	57	11		0	5.34					1.19	42.8	34.3
		6-12	L	34	49	17	72		4.15	43	22	21	CL	1.26	40.3	34.8
93	Webster	0-6	SiL	38	51	11		0	4.60					1.10	48.7	39.4
		6-12	L	40	48	12	68		4.90	50	25	25	CL	1.24	39.4	34.7
94	Clarion	0-6	L	35	46	19		0	3.96					1.46	29.2	27.8
		6-12	L	35	46	19	72		1.98	29	16	13	CL	1.54	24.2	22.9
95	Hayden	0-6	SL	53	39	8		0	4.70					1.21	38.7	31.3
		6-12	SL	55	33	12	50		3.13	32	19	13	CL	1.38	31.8	27.8
96	Clarion	0-6	L	45	40	15		0	4.34					1.19	43.9	34.1
		6-12	L	45	22	12	67		3.96	36	20	16	CL	1.23	37.1	33.8
97	Unclassified	0-6	SL	52	44	4		0	4.90					1.18	41.9	36.4
		6-12	L	42	47	11	63		3.77	37	21	16	CL	1.22	38.6	35.6
98	Nicolett	0-6	SL	55	33	12		0	5.56					1.14	46.7	42.3
		6-12	L	47	38	15	59		5.12	43	24	19	CL	1.12	47.2	43.0
99	Webster	0-6	SiL	15	71	14		0	5.34					0.98	60.0	51.6
		6-12	SiL	10	67	23	96		0.86	34	21	13	CL	1.15	45.0	37.9
102	Unclassified	0-6	SiL	31	56	13		0	5.12					1.17	43.4	38.3
		6-12	SiL	30	56	14	78		3.62	36	21	15	CL	1.37	33.6	29.7

(Continued)

Table B2c (Continued)

Site No.	Soil Series	Depth Sampled in.	Texture Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	USCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	USCS Class.	Bulk Density g/cc	Soil Moisture by Weight, % Saturation	.06 Atmosphere Tension
103	Unclassified	0-6	SL	54	38	8		0	4.90					1.13	49.2	43.4
		6-12	SL	56	30	14	50		1.98	24	15	9	SC	1.42	29.8	26.6
104	Webster	0-6	L	35	46	19		0	5.68					1.14	45.3	40.7
		6-12	L	36	47	17	72		4.34	46	28	18	ML	1.22	42.6	39.0
105	Clarion	0-6	L	44	48	8		0	5.12					1.06	48.9	43.7
		6-12	L	41	39	20	68		1.15	31	17	14	CL	1.34	32.0	29.4
106	Etter	0-6	SL	75	18	7		0	1.25					1.50	24.6	21.5
		6-12	SL	75	18	7	27		1.25	17	16	1	SM	1.40	27.0	23.0
107	Marshan	0-6	SiL	38	54	8		0	6.28					0.89	69.0	59.8
		6-12	SiL	38	54	8	76		5.68	50	27	23	CL	1.16	42.3	36.6
108	Jevette	0-6	SiL	41	50	9		2	2.87					1.46	29.1	25.2
		6-12	L	39	49	12	69		1.25	23	17	6	CL-ML	1.49	26.8	21.4
109	Onamia	0-6	SiL	35	55	10		5	5.34					1.05	46.6	31.4
		6-12	SiL	24	65	11	83		4.90	38	26	12	ML	1.21	40.6	28.2
110	Dakota	0-6	L	43	47	10		3	3.13					1.60	23.6	21.4
		6-12	L	46	45	9	61		1.88	22	16	6	CL-ML	1.64	21.4	20.2
111	Milaca	0-6	SL	65	26	9		5	3.13					1.30	36.6	32.9
		6-12	SL	67	26	7	39		0.95	13**	Nonplastic		SM	1.65	19.4	18.4
112	Spooner	0-6	SiL	27	63	10		8	3.54					1.18	42.8	38.0
		6-12	SiL	27	63	10	84		0.62	25	17	8	CL	1.46	26.9	23.3
113	Freer	0-6	SiL	32	59	9		4	3.54					1.43	31.6	27.7
		6-12	SiL	32	58	10	81		2.75	26	22	4	ML	1.33	33.9	28.0
114	Unclassified	0-6	SiL	27	64	9		6	4.15					1.10	47.4	33.6
		6-12	SiL	27	65	8	77		1.45	22	22	0	ML	1.31	31.0	24.8
115	Spencer	0-6	L	52	38	10		5	3.41					1.06	48.3	35.2
		6-12	SL	60	36	4	48		1.65	17**	Nonplastic		SC	1.34	32.7	23.1
116	Unclassified	0-6	SL	67	25	18		3	2.47					1.26	34.4	24.2
		6-12	SL	71	25	4	42		1.15	14**	Nonplastic		SM	1.47	25.0	20.7
117	Unclassified	0-6	SiL	36	53	11		6	4.70					0.89	63.6	45.2
		6-12	SiL	36	55	9	71		1.25	20	17	3	ML	1.41	28.2	24.7
118	Plainfield	0-6	SL	67	25	8		5	2.60					1.05	47.2	34.2
		6-12	SL	72	25	3	34		1.15	14**	Nonplastic		SM	1.07	47.9	34.5
119	Vilas	0-6	SL	62	33	5		10	2.87					1.01	52.7	39.1
		6-12	SL	61	35	4	45		1.45	20**	Nonplastic		SM	1.20	39.8	31.3
120	Plainfield	0-6	LS	82	14	4		5	2.87					1.09	46.1	26.1
		6-12	LS	86	11	3	22		1.05	19**	Nonplastic		SM	1.16	40.1	30.1
121	Kennan	0-6	SL	56	37	7		8	4.70					0.90	60.9	35.9
		6-12	SL	60	34	5	47		2.87	26**	Nonplastic		SM	1.04	51.4	30.2
122	Kennan	0-6	SL	45	50	5		10	4.15					1.11	48.8	40.1
		6-12	SL	50	46	4	63		2.23	25**	Nonplastic		ML	1.17	42.8	34.0
123	Ontonagon	0-6	SL	70	27	3		10	4.90					1.02	56.0	49.5
		6-12	LS	73	23	4	36		1.45	21**	Nonplastic		SM	1.36	34.7	29.5
124	Ontonagon	0-6	L	27	47	26		0	5.12					1.19	43.0	38.8
		6-12	C	14	36	50	91		1.05	55	22	33	CH	1.37	36.5	34.9
125	Ontonagon	0-6	L	28	50	22		0	6.28					1.05	54.7	50.5
		6-12	CL	21	41	38	84		1.55	41	19	22	CL	1.43	33.9	32.0
126	Unclassified	0-6	SiL	35	58	7		0	2.47					1.05	52.2	43.1
		6-12	SiL	40	53	7	72		0.55	17	17	0	ML	1.37	30.7	26.3

(Continued)

** Modified technique.

Table B2c (Continued)

Site No.	Soil Series	Depths Sampled in	Texture Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	USCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	USCS Class.	Bulk Density g/cc	Soil Moisture by Weight, % Saturation	.33 Atmosphere Tension
127	Unclassified	0-6	SiL	27	66	7		1	3.00					1.17	42.4	37.7
		6-12	SiL	22	72	6	92		0.70	20**	Nonplastic		ML	1.31	33.8	29.3
128	Unclassified	0-6	SiL	25	68	7		25	4.28					1.01	----	40.7
		6-12	SiL	12	69	19	96		1.65	23	19	4	CL-ML	1.30	----	20.2
129	Unclassified	0-6	L	35	50	15		1	4.05					1.25	47.8	40.3
		6-12	SiCL	15	57	28	88		1.25	39	22	17	CL	1.38	34.1	30.4
130	Hubbard	0-6	SL	69	31	6		13	4.52					1.22	39.8	32.0
		6-12	SL	68	27	5	37		1.25	16**	Nonplastic		SM	1.40	31.2	27.6
131	Todd	0-6	LS	81	15	4		8	1.15					1.50	26.5	22.4
		6-12	LS	84	13	3	22		0.78	12**	Nonplastic		SM	1.50	22.2	17.6
132	Menahga	0-6	LS	85	10	5		3	1.25					1.50	25.4	10.2
		6-12	LS	86	9	5	16		0.46	13**	Nonplastic		SM	1.55	23.2	9.2
133	Hubbard	0-6	SL	72	23	5		3	3.96					1.47	26.1	20.6
		6-12	LS	74	22	4	28		2.08	16**	Nonplastic		SM	1.52	24.8	18.4
134	Rockwood	0-6	LS	77	20	3		3	4.60					1.39	29.9	20.7
		6-12	SL	73	22	5	33		0.86	14**	Nonplastic		SM	1.46	25.9	18.1
135	Unclassified	0-6	L	44	49	7		2	5.80					1.08	51.1	45.0
		6-12	L	40	47	13	66		5.12	38	25	13	ML	1.31	35.6	32.9
136	Pierce	0-6	SL	71	23	6		4	5.34					1.12	40.8	30.3
		6-12	LS	84	10	6	18		2.35	15**	Nonplastic		SM	1.50	24.8	14.3
137	Barnes	0-6	L	39	49	12		3	4.52					1.11	45.0	36.2
		6-12	SiL	30	50	20	73		2.75	34	18	16	CL	1.22	39.5	31.7
138	Barnes	0-6	SL	67	30	3		5	5.34					0.99	55.0	45.0
		6-12	SL	60	32	8	48		3.96	35	21	14	SC	1.14	45.5	35.7
139	Fargo	0-6	CL	20	50	30		0	5.34					1.06	52.0	46.3
		6-12	SiCL	16	46	38	88		0.95	55	21	34	CH	1.22	43.3	38.3
140	Grimstad	0-6	L	47	40	13		0	4.05					1.15	----	31.5
		6-12	SL	58	27	15	79		2.75	31	18	13	CL	1.35	----	26.6
142	Ulen	0-6	L	27	49	24		0	2.35					1.34	34.1	30.4
		6-12	SiC	16	44	40	88		1.15	50	19	31	CL	1.44	30.1	28.4
143	Bearden	0-6	L	48	35	17		0	4.70					1.16	----	35.9
		6-12	L	51	30	19	62		3.00	37	19	18	CL	1.18	----	35.6
144	Unclassified	0-6	SiL	37	51	12		0	5.24					0.96	60.3	51.6
		6-12	L	36	40	24	74		2.47	36	17	19	CL	1.26	38.7	36.2
146	Fargo	0-6	SiL	12	70	18		0	5.92					0.98	58.2	51.3
		6-12	SiL	25	53	22	84		5.56	54	30	24	MH	1.12	49.1	41.9
147	Sioux	0-6	SiL	35	54	11		0	4.80					1.23	39.2	33.9
		6-12	SiL	33	58	9	82		3.69	39	22	17	CL	1.24	39.1	35.3
148	Clarion	0-6	SiL	30	63	7		0	5.80					1.22	40.0	37.6
		6-12	SiL	25	64	11	89		3.62	45	22	23	CL	1.25	38.8	36.5
149	Unclassified	0-6	SL	57	34	9		0	6.64					0.80	80.2	69.4
		6-12	SL	65	22	13	43		4.34	31	17	14	SC	1.33	31.6	26.9
150	Unclassified	0-6	LS	81	12	7		0	1.88					1.22	36.3	24.3
		6-12	S	88	9	3	17		2.08	19**	Nonplastic		SM	1.44	28.6	21.9
151	Unclassified	0-6	SL	53	41	6		0	5.92					0.96	59.2	48.7
		6-12	SL	59	33	8	53		5.56	31	22	9	CL	1.12	48.0	37.6
152	Unclassified	0-6	SL	70	24	6		0	5.12					1.14	44.5	36.8
		6-12	SL	68	29	3	38		5.12	26**	Nonplastic		SM	1.18	43.0	33.1

(Continued)

** Modified technique.

Table B2c (Concluded)

Site No.	Soil Series	Depths Sampled in.	Texture Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	USCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	USCS Class.	Bulk Density g/cc	Soil Moisture by Weight, % Saturation	.06 Atmosphere Tension
153	Unclassified	0-6	SL	56	36	8		1	6.28					1.09	49.8	36.5
		6-12	SL	63	26	11	39		3.62	27	15	12	SC	1.43	28.8	25.0
154	Unclassified	0-6	LS	78	18	4		2	3.00					1.45	28.0	24.4
		6-12	SL	64	27	9	43		1.65	19	14	5	SM-SC	1.53	24.5	20.6
155	Onamia	0-6	SiL	20	59	21		15	2.87					1.30	36.1	30.5
		6-12	L	42	50	8	73		0.78	20	19	1	ML	1.48	25.4	23.6
156	Milaca	0-6	L	43	49	8		10	2.87					1.24	40.4	35.6
		6-12	SiL	29	59	12	82		0.55	22	19	3	ML	1.51	25.1	22.5
157	Adolph	0-6	SiL	31	62	7		1	5.80					1.16	43.0	35.5
		6-12	SiL	22	56	22	88		1.25	36	18	18	CL	1.45	27.0	23.8
158	Greenbush	0-6	SiL	40	54	6		15	3.77					1.38	26.5	19.3
		6-12	SiL	32	51	17	73		0.70	19	16	3	ML	1.51	24.1	19.1
159	Milaca	0-6	SiL	26	63	11		1	6.28					1.22	40.6	35.4
		6-12	SiL	23	65	12	89		1.65	26	24	2	ML	1.34	34.0	31.2
160	Onamia	0-6	SiL	34	56	10		2	3.41					1.34	32.7	27.4
		6-12	SiL	34	55	11	74		1.88	22	20	2	ML	1.56	24.5	21.6
161	Adolph	0-6	SiL	42	51	7		1	4.15					1.20	41.0	34.7
		6-12	SiL	44	50	6	68		1.05	17**	16	1	ML	1.45	27.7	23.2
162	Freer	0-6	SiL	28	57	15		1	5.56					1.15	46.9	45.0
		6-12	SiL	35	49	16	74		2.60	31	23	8	ML	1.35	33.5	31.6
163	Milaca	0-6	SiL	30	59	11		1	3.27					1.22	41.4	35.7
		6-12	SiL	31	63	6	96		0.55	21	19	2	ML	1.49	33.5	24.4
164	Onamia	0-6	SiL	25	67	8		1	3.00					1.22	-----	32.0
		6-12	SiL	20	72	8	92		0.86	20**	Nonplastic		ML	1.43	-----	27.5
165	Onamia	0-6	SL	78	15	7		2	2.87					1.38	32.2	26.3
		6-12	LS	86	11	3	20		0.78	14**	Nonplastic		SM	1.32	31.9	25.4
166	Omega	0-6	SL	55	37	8		5	2.35					1.47	27.9	24.9
		6-12	SL	56	38	6	53		0.70	15**	15	0	ML	1.59	22.9	20.0
167	Cloquet	0-6	SL	67	28	5		15	4.70					1.30	36.5	32.2
		6-12	SL	72	24	4	37		1.05	13**	Nonplastic		SM	1.58	23.6	19.2
168	Unclassified	0-6	LS	79	17	4		20	3.13					1.55	24.1	17.7
		6-12	LS	84	13	3	18		1.55	13**	Nonplastic		SM	1.77	16.6	10.9
169	Unclassified	0-6	SL	73	13	4		10	2.87					1.29	36.5	28.1
		6-12	LS	76	20	4	32		0.86	12**	Nonplastic		SM	1.48	25.8	21.8
170	Unclassified	0-6	SiL	40	55	5		5	5.12					1.06	45.3	36.9
		6-12	L	46	46	8	68		1.65	18**	Nonplastic		ML	1.36	33.2	29.9

** Modified technique.

Table B2d

Soil Properties of Strength-moisture Survey Sites

Intermountain Region

Site No.	Soil Series	Depths Sampled in.	Texture Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	USCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	USCS Class.	Bulk Density g/cc	Soil Moisture by Weight, % Saturation	.06 Atmosphere Tension
1	Unclassified	0-6	L	43	46	11		3	5.80					0.99	61.9	40.2
		6-12	L	40	50	10	67		5.24	41	28	13	ML	1.18	45.2	33.1
2	Unclassified	0-6	SL	65	26	9		10	5.56					1.20	43.8	28.4
		6-12	SL	68	23	9	63		2.47	21**	Nonplastic		ML	1.30	38.2	24.7
3	Unclassified	0-6	L	40	50	10		10	9.00					1.23	42.6	29.5
		6-12	L	40	50	10	67		5.68	39	25	14	ML	1.26	40.6	32.5
4	Unclassified	0-6	L	41	45	14		15	3.86					1.43	28.[illegible]	24.6
		6-12	L	37	46	17	71		3.77	31	19	12	CL	1.48	27.6	25.3
5	Farmington	0-6	SiL	25*	57*	18*		0	15.00					0.78	90.3	81.9
		6-12	SiL	20*	57*	23*	85*		2.35	53	25	28	CH	1.33	39.0	36.8
6	Ironton	0-6	SiL	30	52	18		0	6.04					1.29	38.2	33.7
		6-12	L	39	41	20	74		3.41	36	18	18	CL	1.49	28.6	27.0
7	Timpanogas	0-6	L	40	47	13		0	2.87					1.37	30.6	25.9
		6-12	L	35	50	15	80		2.87	25	18	7	CL-ML	1.44	28.5	23.0
8	Airport	0-6	SL	56	34	10		0	1.15					1.56	22.1	17.1
		6-12	SL	56	30	14	52		0.86	30	14	16	CL	1.65	19.7	16.1
9	Saltair	0-6	SiCL	10	62	28		0	1.33					1.27	38.8	32.9
		6-12	SiCL	6	59	35	38		1.15	36	17	19	CL	1.60	24.2	22.9
10	Terminal	0-6	SiL	17	58	25		0	2.60					1.37	33.4	25.2
		6-12	SiCL	10	53	37	95		0.78	41	16	25	CL	1.50	30.4	27.4
11	Welby	0-6	L	52	38	10		0	3.00					1.54	26.6	23.1
		6-12	SL	57	34	9	57		1.25	22	18	4	CL-ML	1.58	24.4	19.8
12	Taylorsville	0-6	SiL	21	53	26		0	4.80					1.44	29.1	25.0
		6-12	L	25	49	26	83		2.35	31	18	13	CL	1.48	25.5	21.3
13	Taylorsville	0-6	SiL	25	59	16		3	4.34					1.22	40.6	30.1
		6-12	SiL	29	51	20	85		1.63	30	18	12	CL	1.46	27.5	23.4
14	Taylorsville	0-6	SiL	19	61	20		0	3.96					1.36	33.2	27.9
		6-12	SiL	13	62	25	95		1.88	33	18	15	CL	1.46	28.0	25.6
15	Terminal	0-6	SiL	29	54	17		0	3.62					1.38	32.4	28.1
		6-12	L	39	43	18	75		1.45	26	17	9	CL	1.44	28.9	24.5
16	Kirkham	0-6	SiCL	17	55	28		0	3.96					1.38	33.5	28.0
		6-12	SiCL	16	49	35	90		1.45	35	18	17	CL	1.57	24.6	23.1
17	Welby	0-6	SiL	35	51	14		0	3.96					1.20	41.4	29.8
		6-12	L	36	47	17	79		2.60	25	17	8	CL	1.42	29.6	22.8
18	McBeth	0-6	SiL	30	52	18		0	4.15					1.25	40.8	33.4
		6-12	SiL	30	53	17	80		4.15	45	27	18	ML	1.26	40.9	33.7
19	Welby	0-6	L	31	48	21		17	5.92					1.18	44.6	40
		6-12	L	34	46	20	76		5.68	48	30	18	ML	1.17	45.0	40.8
20	Red Rock	0-6	SL	59	29	12		0	2.23					1.65	20.5	18.9
		6-12	SL	56	32	12	54		1.[illegible]	28	21	7	CL-ML	1.53	23.4	20.3
21	Kirkham	0-6	L	30	47	23		0	3.77					1.42	31.0	28.8
		6-12	L	38	40	22	72		1.25	26	16	10	CL	1.56	25.6	24.4
22	Trenton	0-6	SiL	19	63	18		0	6.04					0.97	63.0	53.6
		6-12	SiL	10	67	23	96		3.77	49	27	22	CL	1.26	42.2	39.8
23	Millville	0-6	SiL	11	69	20		0	4.90					1.34	34.8	32.3
		6-12	SiL	13	67	20	96		2.60	40	24	16	CL	1.40	31.6	30.4

(Continued)

* Adjusted value. ** Modified technique.

Table B2i (Continued)

Site No.	Soil Series	Depths Sampled in.	Texture Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	USCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	USCS Class.	Bulk Density g/cc	Soil Moisture by Weight, % Saturation	.06 Atmosphere Tension
24	Salt Lake	0-6	SiL	20	60	20		0	6.52					1.15	48.0	41.0
		6-12	SiL	19	54	27	89		4.90	52	35	17	MH	1.08	55.1	52.2
25	Conda	0-6	L	45	45	10		3	4.90					1.13	48.0	39.8
		6-12	L	46	45	9	63		4.90	37	32	5	ML	1.15	47.9	41.0
26	Churchill	0-6	L	50	42	8		0	5.24					0.96	64.3	54.7
		6-12	SL	55	40	5	55		2.23	32**	Nonplastic		ML	1.18	45.2	37.2
27	Walla Walla	0-6	SiL	20	74	6		0	3.96					1.36	33.9	31.8
		6-12	SiL	14	70	16	98		2.35	34	21	13	CL	1.42	31.1	29.5
28	Walla Walla	0-6	SiL	16	70	14		0	3.27					1.40	32.8	30.2
		6-12	SiL	14	68	18	99		1.77	33	20	13	CL	1.38	32.6	29.2
29	Ritzville	0-6	SiL	24	66	10		2	1.45					1.21	41.7	33.6
		6-12	SiL	20	65	15	96		1.15	30	20	10	CL	1.40	31.5	27.7
30	Ritzville	0-6	SiL	20	67	13		3	2.08					1.20	41.9	35.5
		6-12	SiL	20	70	10	97		1.15	28	20	8	CL	1.31	36.0	31.2
31	Hyrum	0-6	SiL	26	56	18		3	2.35					1.28	37.9	31.5
		6-12	SiL	25	57	18	86		1.33	32	18	14	CL	1.50	27.0	25.0
32	Onyx	0-6	SiL	25	64	11		3	2.08					1.30	38.9	34.5
		6-12	SiL	29	61	10	93		1.25	23	21	2	ML	1.32	38.5	33.8
34	Portneuf	0-6	SiL	21	70	9		0	1.45					1.14	46.6	36.0
		6-12	SiL	15	76	9	97		1.45	30	26	4	ML	1.34	35.5	29.8
35	Portneuf	0-6	SiL	28	62	10		0	1.65					1.28	39.7	32.9
		6-12	SiL	23	67	10	95		1.05	24	22	2	ML	1.18	46.8	40.0
36	Bannock	0-6	SiL	15	70	15		0	1.65					1.57	25.9	22.5
		6-12	SiL	21	68	11	94		0.86	26	21	5	CL-ML	1.56	25.8	23.4
37	Declo	0-6	L	42	48	10		0	1.45					1.41	31.0	27.6
		6-12	SiL	30	57	13	81		1.05	26	19	7	CL-ML	1.32	37.8	32.3
38	Declo	0-6	SiL	28	59	13		0	1.65					1.43	31.2	27.6
		6-12	SiL	29	61	10	87		1.45	29	19	10	CL	1.54	26.1	23.8
39	Sagemoor	0-6	SiL	28	58	14		0	2.47					1.48	28.8	26.4
		6-12	SiL	22	62	16	92		0.86	32	20	12	CL	1.50	28.0	25.1
40	Sagemoor	0-6	L	42	43	15		0	1.05					1.53	28.0	24.4
		6-12	L	50	40	10	70		0.55	23	20	3	ML	1.53	27.6	22.9
41	Pingal	0-6	SL	56	34	10		0	1.15					1.62	21.5	18.5
		6-12	SL	63	28	9	48		0.46	15**	Nonplastic		SM	1.70	20.2	16.8
42	Sagemoor	0-6	SiL	31	55	14		0	2.47					1.31	36.7	32.4
		6-12	SiL	20	63	17	91		1.33	40	22	18	CL	1.31	37.1	31.9
43	Pingal	0-6	LS	80	12	8		0	0.70					1.46	30.5	15.9
		6-12	LS	82	11	7	34		0.70	17**	Nonplastic		SM	1.64	21.3	17.4
44	Blackfoot	0-6	LS	86	6	8		0	0.95					1.41	33.4	28.3
		6-12	S	93	4	3	12		0.78	18**	Nonplastic		SM	1.60	22.9	15.9
45	Bannock	0-6	L	40	50	10		0	2.47					1.44	29.6	25.6
		6-12	SiL	39	52	9	78		1.15	22	19	3	ML	1.60	23.6	20.7
46	Beverly	0-6	L	44	44	12		0	1.77					1.42	30.5	27.6
		6-12	SL	58	32	10	58		0.86	21	18	3	ML	1.60	23.2	21.3
47	Bannock	0-6	SiL	35	50	15		0	1.33					1.54	25.4	22.6
		6-12	SiL	36	53	11	82		0.86	24	18	6	CL-ML	1.68	21.0	19.3
48	Paul	0-6	SiL	20	65	15		0	2.13					1.36	35.0	26.7
		6-12	SiL	21	62	17	90		1.98	34	19	15	CL	1.38	35.3	28.9

(Continued)

** Modified technique.

Table B2d (Continued)

Site No.	Soil Series	Depths Sampled in.	Texture Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	USCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	USCS Class.	Bulk Density g/cc	Soil Moisture by Weight, % Saturation	.06 Atmosphere Tension
49	Bannock	0-6	SL	56	34	10		0	1.25					1.47	28.0	22.5
		6-12	SL	64	27	9	50		0.78	34	19	15	CL	1.56	24.4	20.8
50	Portneuf	0-6	SiL	33	59	8		0	1.25					1.48	32.2	28.0
		6-12	SiL	27	65	8	94		0.78	24	22	2	ML	1.47	31.9	28.0
51	Portneuf	0-6	SiL	25	65	10		0	1.77					1.43	34.3	29.5
		6-12	SiL	19	76	5	97		1.15	31	23	8	ML	1.32	39.8	35.2
52	Portneuf	0-6	SiL	25	60	15		1	2.60					1.32	37.2	29.8
		6-12	SiL	30	57	13	89		1.33	34	21	13	CL	1.38	35.6	31.2
53	Portneuf	0-6	L	37	48	15		5	1.65					1.38	34.5	28.4
		6-12	SiL	25	55	20	91		1.25	34	20	14	CL	1.37	34.5	29.5
54	Unclassified	0-6	SiL	34	53	13		0	2.08					1.26	40.3	35.6
		6-12	SiL	35	55	10	84		1.45	24	21	3	ML	1.26	39.8	34.4
55	Unclassified	0-6	SiL	35	51	14		0	2.60					1.37	33.8	29.5
		6-12	SiL	35	57	8	84		1.33	27	25	2	ML	1.41	32.9	28.4
56	Unclassified	0-6	SiL	18	63	19		0	5.24					1.22	43.4	38.4
		6-12	SiL	20	62	18	91		2.60	45	26	19	CL	1.28	40.6	36.9
57	Unclassified	0-6	SL	56	36	8		3	0.78					1.59	23.1	19.0
		6-12	SL	64	23	13	46		0.78	22	18	4	SC	1.59	23.2	19.4
58	Unclassified	0-6	L	40	50	10		0	6.04					1.11	44.9	38.0
		6-12	L	41	48	11	73		3.96	36	31	5	ML	1.13	47.4	41.7
59	Unclassified	0-6	L	41	46	13		5	3.27					1.42	31.1	26.5
		6-12	L	41	44	15	70		1.15	29	18	11	CL	1.58	24.9	22.6
60	Unclassified	0-6	SiL	34*	55*	11*		3	11.36					0.92	68.3	59.9
		6-12	SiL	28*	57*	15*	80*		6.40	62	49	13	MH	0.82	81.5	76.8
61	Gooding	0-6	L	47	37	16		1	2.08					1.56	25.4	20.4
		6-12	L	50	39	11	62		1.65	25	15	10	CL	1.72	19.8	17.2
62	Gooding	0-6	LS	88	4	8		0	0.70					1.52	25.8	11.0
		6-12	S	97	1	2	8		0.32	23**	Nonplastic		SM	1.52	25.8	10.1
63	Portneuf	0-6	L	40	47	13		0	1.77					[illegible]	38.9	32.3
		6-12	SiL	35	50	15	87		0.78	28	19	9	CL	[illegible]	29.3	25.4
64	Portneuf	0-6	L	52	41	7		0	1.05					1.42	32.8	28.5
		6-12	SiL	42	50	8	79		0.70	22	21	1	ML	1.38	35.7	31.0
65	Minidoka	0-6	L	50	40	10		0	1.65					1.47	28.4	24.2
		6-12	L	47	45	8	80		1.25	28	21	7	CL-ML	1.44	30.5	26.7
66	Portneuf	0-6	SiL	40	51	9		1	1.25					1.37	32.6	26.5
		6-12	SiL	35	51	14	88		0.70	26	18	8	CL	1.38	33.9	26.1
67	Chilcott	0-6	SiL	21	60	19		0	1.77					1.36	33.8	26.9
		6-12	SiL	20	57	23	93		1.55	47	24	23	CL	1.28	39.2	31.5
68	Power	0-6	SiL	31	55	14		8	1.77					1.40	32.1	26.7
		6-12	SiL	27	53	20	87		1.55	35	20	15	CL	1.32	38.8	29.0
69	Unclassified	0-6	L	50	41	9		1	2.23					1.43	29.2	23.7
		6-12	L	50	42	8	63		1.15	26	20	6	CL-ML	1.40	30.8	25.2
70	Kilmarque	0-6	SL	54	36	10		8	3.27					1.61	21.7	18.4
		6-12	SL	56	32	12	52		1.05	16	14	2	ML	1.79	16.2	14.7
71	Moscow	0-6	SL	70	22	8		8	2.23					1.62	18.9	14.5
		6-12	SL	75	18	7	31		0.38	15**	Nonplastic		SM	1.66	21.0	12.4
72	Sweet	0-6	SL	54	35	11		5	3.00					1.56	23.3	18.5
		6-12	SL	60	29	11	46		1.45	28	20	8	SC	1.56	23.9	17.5

(Continued)

* Adjusted value. ** Modified technique.

Table B2d (Continued)

Site No.	Soil Series	Depths Sampled in.	Texture Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	USCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	USCS Class.	Bulk Density g/cc	Soil Moisture by Weight, % Saturation	.06 Atmosphere Tension
73	Sweet	0-6	L	51	38	11		1	3.27					1.55	24.0	20.0
		6-12	SL	57	32	11	50		2.47	23	15	8	CL	1.54	25.2	20.0
74	Unclassified	0-6	SiL	19	68	13		0	3.41					1.11	50.0	41.8
		6-12	SiL	19	71	10	93		2.60	39	27	12	ML	1.08	51.4	44.6
75	Chilcott	0-6	SiL	25	64	11		0	1.77					1.39	30.7	25.1
		6-12	SiL	19	70	11	94		0.95	28	20	8	CL	1.41	31.4	27.8
76	Falk	0-6	SiL	30	58	12		3	2.75					1.36	36.1	30.9
		6-12	SiL	35	53	12	78		1.33	25	20	5	CL-ML	1.52	27.0	24.6
77	Unclassified	0-6	SL	68	24	8		1	3.96					1.07	52.4	44.8
		6-12	SL	69	26	5	35		2.08	28**	Nonplastic		SM	1.16	44.9	39.6
78	Portneuf	0-6	SL	63	27	10		3	1.05					1.65	20.4	17.4
		6-12	SL	67	23	10	47		0.86	21	17	4	SM-SC	1.73	18.5	16.6
79	Portneuf	0-6	SL	55	34	11		0	1.05					1.54	24.7	21.7
		6-12	SCL	65	25	10	58		0.55	22	19	3	ML	1.68	21.0	18.9
80	Portneuf	0-6	SiL	36	51	13		0	1.15					1.48	28.9	25.6
		6-12	SiL	32	58	10	92		0.70	25	20	5	CL-ML	1.56	26.3	24.1
81	Minidoka	0-6	SiL	28	58	14		0	1.88					1.19	44.7	32.4
		6-12	SiL	26	60	14	92		1.55	29	20	9	CL	1.31	34.9	27.5
82	Portneuf	0-6	SiL	21	66	13		0	2.47					1.36	35.5	31.7
		6-12	SiL	16	72	12	96		1.98	33	21	12	CL	1.45	30.9	29.3
83	Paul	0-6	SiL	37	53	10		0	1.88					1.49	27.6	23.6
		6-12	SiL	29	51	20	84		1.25	32	17	15	CL	1.56	25.0	22.9
84	Rupert	0-6	SL	59	32	9		0	1.15					1.59	23.0	16.5
		6-12	SL	67	26	7	42		0.78	15	13	2	SM	1.69	19.9	14.8
85	Paul	0-6	S	92	2	6		0	0.62					1.56	23.4	11.4
		6-12	S	93	3	4	8		0.25	21**	Nonplastic		SM	1.57	22.5	9.4
86	Goose Creek	0-6	SiL	35	52	13		0	2.47					1.09	50.0	37.8
		6-12	SiL	30	55	15	83		2.47	38	24	14	CL	1.22	41.8	34.5
87	View	0-6	SL	55	33	12		0	2.08					1.36	29.7	24.1
		6-12	SL	65	28	7	46		0.78	22**	Nonplastic		SM	1.37	28.4	21.9
88	Moscow	0-6	SL	65	26	9		5	2.47					1.34	34.8	23.9
		6-12	SL	68	25	7	39		0.62	18**	Nonplastic		SM	1.52	26.9	17.0
89	Unclassified	0-6	L	38	49	13		1	4.70					1.28	37.8	34.3
		6-12	L	36	49	15	73		3.69	36	22	14	CL	1.24	40.2	35.8
90	Unclassified	0-6	SiL	29*	59*	12*		1	6.04					0.97	64.4	50.0
		6-12	SiL	22*	60*	18*	85*		4.05	40	28	12	ML	1.15	47.9	40.0
91	Unclassified	0-6	SiL	39	50	11		8	5.34					1.08	55.0	44.4
		6-12	SiL	37	52	11	72		3.54	36	27	9	ML	1.30	40.0	35.8
92	Unclassified	0-6	SiL	14	67	19		0	4.52					1.02	57.9	43.0
		6-12	SiL	16	68	16	92		3.69	42	25	17	CL	1.08	53.0	38.0
93	Unclassified	0-6	SiL	27	55	18		0	5.68					0.92	65.9	45.1
		6-12	SiCL	13	60	27	91		3.41	55	32	23	MH	1.00	59.7	40.8
94	Unclassified	0-6	SiL	20	55	25		3	4.52					1.22	44.7	40.0
		6-12	SiCL	20	52	28	89		4.05	56	26	30	CH	1.31	39.7	38.4
95	Unclassified	0-6	L	29*	46*	25*		0	5.92					1.01	58.1	50.2
		6-12	CL	26*	45*	29*	80*		5.80	59	32	27	MH	1.22	42.6	41.2
96	Unclassified	0-6	CL	22	46	32		1	3.62					1.28	40.6	33.3
		6-12	CL	25	45	30	84		3.62	49	23	26	CL	1.41	31.8	30.9

(Continued)

* Adjusted value. ** Modified technique.

Table B2d (Continued)

Site No.	Soil Series	Depths Sampled in.	Texture Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	USCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	USCS Class.	Bulk Density g/cc	Soil Moisture by Weight, % Saturation	.06 Atmosphere Tension
97	Unclassified	0-6	SiL	25	53	22		3	2.35					1.39	32.0	25.6
		6-12	L	30	48	22	81		1.45	31	18	13	CL	1.48	27.4	22.0
98	Unclassified	0-6	CL	23*	46*	31*		0	6.52					1.21	45.4	39.7
		6-12	CL	23*	45*	32*	85*		2.75	50	23	27	CL	1.38	34.4	33.6
99	Billings	0-6	SiCL	14	58	28		0	1.88					1.29	38.2	27.2
		6-12	SiCL	16	51	33	92		1.65	33	19	14	CL	1.53	26.2	22.4
100	Redfield	0-6	SiCL	8	61	31		0	3.13					1.26	42.1	38.1
		6-12	SiCL	13	57	30	92		1.45	42	25	17	CL	1.37	35.5	33.8
101	Redfield	0-6	CL	38*	28*	34*		0	5.80					1.16	50.4	46.2
		6-12	CL	20*	45*	35*	85*		1.45	58	24	34	CH	1.42	33.2	33.0
102	Palasade	0-6	SL	57	27	16		0	1.77					1.41	31.9	29.3
		6-12	SL	56	24	20	53		1.15	34	17	17	CL	1.42	31.0	27.9
103	Unclassified	0-6	L	28*	45*	27*		0	2.87					1.04	54.3	49.7
		6-12	L	34*	46*	20*	75*		2.35	54	29	25	CH	1.16	49.7	47.4
104	Musinia	0-6	SL	53	32	15		0	1.25					1.60	23.6	20.9
		6-12	SL	56	33	11	55		0.55	24	19	5	CL-ML	1.64	23.9	22.0
105	Redfield	0-6	CL	27	45	28		3	4.15					1.23	44.7	40.7
		6-12	L	39	39	22	68		1.77	37	18	19	CL	1.53	26.6	25.9
106	Redfield	0-6	L	36	40	24		0	3.54					1.43	29.7	27.2
		6-12	L	43	33	24	68		1.05	35	16	19	CL	1.66	20.2	19.4
107	Redfield	0-6	L	38	39	23		0	2.60					1.55	25.5	22.4
		6-12	L	45	35	20	63		1.88	30	15	15	CL	1.57	23.5	19.7
108	LaVerkin	0-6	SiCL	13	53	34		0	4.90					1.31	39.1	31.7
		6-12	CL	35	36	29	76		1.25	33	16	17	CL	1.45	30.2	27.0
109	Redfield	0-6	CL	29	38	33*		0	3.00					1.54††	29.5	27.6
		6-12	L	47	42	11	72		0.95	29	17	12	CL	1.70††	22.2	21.7
110	Bracken	0-6	LS	80	12	8		0	0.55					1.58	23.9	19.9
		6-12	LS	85	10	5	30		0.55	17**	Nonplastic		SM	1.56	24.6	20.1
111	Gila	0-6	SiL	31	57	12		0	1.05					1.54	24.9	18.2
		6-12	SL	70	26	4	48		0.70	22**	Nonplastic		SM	1.47	28.8	21.0
112	Gila	0-6	L	41	42	17**		0	2.35					1.36	34.2	29.4
		6-12	SL	78	15	7	29		0.46	20**	Nonplastic		SM	1.54	25.1	22.3
113	Saint George	0-6	LS	88	6	6		0	0.55					1.60	23.3	15.1
		6-12	S	89	6	5	20		0.55	17**	Nonplastic		SM	1.62	22.0	13.2
114	Tobler	0-6	S	89	3	8		0	0.32					1.60	21.8	8.8
		6-12	S	90	6	4	15		0.18	16**	Nonplastic		SM	1.69	20.5	11.6
115	Musinia	0-6	L	50	40	10		0	1.88					1.37	32.1	29.3
		6-12	SL	70	23	7	42		0.62	23**	Nonplastic		SM	1.50	27.7	25.7
116	Tabioma	0-6	L	42	44	14		0	3.00					1.46	29.2	26.5
		6-12	L	46	39	15	70		2.35	27	17	10	CL	1.52	26.4	23.2
117	Tabioma	0-6	SL	60	29	11		3	1.65					1.52	25.1	21.9
		6-12	SL	67	27	6	46		0.95	19**	Nonplastic		SM	1.55	24.6	21.0
118	Unclassified	0-6	SiL	33	52	15		0	3.62					1.04	52.8	41.4
		6-12	SiL	20	55	25	88		2.35	42	28	14	ML	1.08	52.4	43.7
119	Unclassified	0-6	SiL	12	68	20		0	2.02					1.38	32.8	27.1
		6-12	SiL	20	54	26	88		1.65	34	22	12	CL	1.18	45.8	39.2
120	Unclassified	0-6	SiC	8	50	42		0	3.12					1.41	31.2	24.8
		6-12	C	15	39	46	91		1.65	34	18	16	CL	1.69	21.4	19.9

(Continued)

* Adjusted value. ** Modified technique. †† Bulk density and moisture content values questionable.

‡ 10% soluble salts washed out before testing. ‡‡ 10% soluble salts washed out before testing.

Table B2d (Concluded)

Site No.	Soil Series	Depths Sampled in.	Textural Class.	Mechanical Analysis by Weight, % Sand	Silt	Clay	USCS Fines < 0.074 mm %	Stone Content by Volume %	Organic Matter by Weight %	Plasticity Constants by Weight, % LL	PL	PI	USCS Class.	Bulk Density g/cc	Soil Moisture by Weight, % Saturation	1/3 Atmosphere Tension
[illegible]	Mayfield	0-6	SL	68	25	13		0	2.53					1.48	28.5	22.5
		6-12	SL	76	24	10	49		0.70	18**	Nonplastic		SM	1.42	21.8	23.6
[illegible]	Amana	0-6	SiL	34	57	9		0	1.65					1.48	30.3	24.2
		6-12	SiL	15	80	15	81		0.95	21	16	5	CL-ML	1.42	32.3	23.8
123	Keller	0-6	L	44	43	13		2	1.55					1.52	26.7	21.8
		6-12	SiL	28	54	18	81		1.33	25	17	8	CL	1.47	28.0	23.0
124	Unclassified	0-6	SiCL	13	66	21		0	5.24					1.23	43.8	41.8
		6-12	SiCL	10	56	34	93		3.13	50	24	26	CL	1.40	34.6	33.4
125	Millard	0-6	SL	74	19	7		3	0.55					1.73	19.8	14.8
		6-12	SL	73	20	7	41		0.55	14**	Nonplastic		SM	1.56	24.6	17.2
126	Unclassified	0-6	S	89	5	6		1	0.32					1.46	28.5	11.1
		6-12	S	92	*	4	15		0.38	18**	Nonplastic		SM	1.52	25.1	12.0
127	Unclassified	0-6	SL	74	18	8		5	0.55					1.40	29.4	17.2
		6-12	LS	77	17	6	20		0.55	20**	Nonplastic		SM	1.44	28.6	21.2
128	Unclassified	0-6	SiCL	8	55	37		0	2.35					1.24	41.5	33.7
		6-12	SiL	17	65	18	93		1.45	34	24	10	ML	1.25	43.4	33.0
129	Unclassified	0-6	L	50	37	13		0	1.33					1.34	35.4	25.0
		6-12	L	41	45	14	71		1.33	21	17	4	CL-ML	1.36	34.0	23.0
130	Unclassified	0-6	SL	63	27	10		5	1.25					1.62	22.4	15.4
		6-12	SL	62	27	11	47		0.95	16**	Nonplastic		SC	1.59	23.9	16.9
131	Unclassified	0-6	SL	64	24	12		5	1.05					1.52	26.6	19.6
		6-12	SL	62	31	7	48		1.05	15**	Nonplastic		SM	1.56	25.8	19.6
132	Unclassified	0-6	SiL	27	54	19		0	2.05					1.12	48.9	39.2
		6-12	SiL	31	50	19	85		1.05	25	17	8	CL	1.28	38.7	33.2
133	Unclassified	0-6	SiL	34	52	14		3	6.76					1.24††	52.3	48.0
		6-12	SiL	37	52	11	79		4.90	45	35	10	ML	1.24††	43.7	41.0
134	Unclassified	0-6	L	36	49	15		3	2.47					1.27	37.3	28.9
		6-12	L	40	43	17	75		1.05	25	17	8	CL	1.28	37.0	29.4
135	Unclassified	0-6	L	36	39	25		3	1.25					1.35	37.3	32.5
		6-12	CL	45	27	28	60		0.73	44	22	22	CL	1.32	34.0	22.2
136	Unclassified	0-6	L	45	41	14		0	1.45					1.37	32.8	24.9
		6-12	L	45	42	13	67		1.05	30	17	13	CL	1.44	30.9	27.6
137	Unclassified	0-6	L	42	46	12		0	2.87					1.32	34.0	28.9
		6-12	SiL	34	58	8	74		1.88	35	24	11	CL	1.48	27.8	23.6
138	Unclassified	0-6	SL	62	28	10		3	0.86					1.46	30.6	14.1
		6-12	SL	68	20	12	36		0.78	16**	Nonplastic		SC	1.51	28.2	13.8
139	Unclassified	0-6	SiL	20	65	15		0	6.52					1.08	48.3	41.9
		6-12	SiL	16	72	12	94		5.80	48	30	18	ML	1.08	51.3	44.5
140	Unclassified	0-6	SiL	37	52	11		8	2.35					1.48	28.4	20.8
		6-12	L	40	50	10	69		1.77	20	17	3	ML	1.63	22.4	17.4
141	Saltair	0-6	SiL	32	53	15		0	1.58					1.42	35.4	34.9
		6-12	CL	42	33	35	61		1.25	30	19	11	CL	1.53	29.4	28.1
142	Saltair	0-6	SiCL	6	57	35		0	1.33					1.41	33.1	31.6
		6-12	C	29	26	45	72		1.33	34	21	13	CL	1.54	28.8	25.6
143	Saltair	0-6	SiCL	9	62	29§		0	1.98					1.34	35.4	36.0
		6-12	SiCL	18	52	30	99		1.05	25	21	4	CL-ML	1.34	37.6	37.1
144	Saltair	0-6	SiL	13	69	18		0	1.05					1.33	37.9	37.4
		6-12	SiCL	10	56	34	99		1.31	38	20	18	CL	1.30	38.6	38.3
145	Unclassified	0-6	SiL	28	52	20		0	2.08					1.51	25.2	18.0
		6-12	L	29	45	26	50		1.77	31	15	16	CL	1.50	26.2	19.2

** Modified technique

†† Bulk density and moisture content values questionable.

§ 16% soluble salts washed out before testing.

Table B3a (Continued)

Southern Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis, 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, in./6 in., 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index, 0- to 12-in. Depth	Remolding Index, 0- to 12-in. Depth	Depth to Water Table in.
Site 115, St. Francis Co., Ark. Loring SiL/SiL (ML)								
7/7/54	5.7	6.3	10.1	0.45	0.53	300+	----	
8/17/54	8.3	7.2	9.5	0.66	0.61	300+	----	
9/29/54	2.8	6.5	8.9	0.22	0.55	300+	----	
1/4/55	26.4	22.8	22.0	2.09	1.93	138	----	
2/15/55	30.7	27.7	26.3	2.43	2.34	150	0.30	
3/15/55	31.5	27.5	28.5	2.49	2.33	111	0.44	
4/18/55	29.7	27.4	28.1	2.35	2.32	142	----	
5/4/55	25.0	22.1	24.7	1.98	1.87	196	----	
Site 117, St. Francis Co., Ark. Loring SiL/SiL (CL)								
7/7/54	10.3	12.6	11.6	0.82	1.10	300+	----	
8/17/54	10.4	10.7	10.2	0.82	0.94	300+	----	
9/29/54	9.0	11.1	10.2	0.71	0.97	300+	----	
1/4/55	26.9	27.7	23.2	2.13	2.43	144	----	
2/15/55	31.6	31.2	29.1	2.50	2.73	100	0.64	
3/15/55	34.8	30.8	29.3	2.76	2.70	112	0.74	
4/18/55	34.4	30.8	28.3	2.72	2.70	71	----	
5/5/55	28.6	28.1	25.7	2.27	2.30	146	----	
Site 119, Lee Co. Ark. Clack SiL/SiL (SM)								
7/7/54	3.5	3.2	3.7	0.32	0.30	300	----	
8/17/54	2.8	2.5	2.9	0.25	0.23	300+	----	
9/29/54	3.6	4.3	2.7	0.33	0.40	300+	----	
1/5/55	15.5	11.7	9.3	1.40	1.10	300+	----	
2/15/55	11.1	12.4	8.7	1.55	1.16	300+	NT	
3/15/55	17.5	11.1	11.3	1.59	1.04	288	NT	
4/19/55	19.5	18.2	21.7	1.77	1.75	235	----	
5/5/55	17.1	16.6	14.0	1.46	1.55	273	----	
Site 121, Phillips Co., Ark. Calhoun SiL/SiL (ML)								
7/8/54	1.5	4.5	6.6	0.13	0.40	300+	----	
8/17/54	4.4	6.7	8.4	0.38	0.60	300+	----	
9/29/54	3.3	6.6	7.0	0.29	0.59	300+	----	
1/5/55	25.1	23.3	21.8	2.18	2.08	269	----	
2/15/55	25.7	21.4	21.2	2.24	1.91	300	NT	
3/15/55	28.9	22.2	20.7	2.51	1.98	181	NT	
4/19/55			Plowed recently					
5/5/55	16.8	18.1	20.0	1.46	1.62	300+	----	
Disked about 6 in. deep before 3/15/55								
Site 123, Phillips Co., Ark. Waverly SiL/SiL (CL)								
7/9/54	10.6	11.8	10.2	0.79	0.93	300+	----	
8/17/54	16.3	14.2	10.3	1.21	1.12	300+	----	
9/29/54	13.5	11.9	6.2	1.00	0.94	300+	----	
1/5/55	38.8	39.3	44.3	2.89	3.09	128	----	
2/15/55	37.3	34.5	29.4	2.76	2.71	91	0.58	DRY
3/1/55	43.7	37.4	32.9	3.25	2.94	67	0.46	4.5
4/1/55	43.9	37.1	35.0	3.27	2.92	74	----	3
5/6/55	37.6	31.4	26.7	2.80	2.47	130	----	29
Site 125, Drew Co., Ark. Boswell L/C (CH)								
7/8/54	17.0	31.4	34.0	1.21	2.28	221	----	
8/17/54	10.9	24.6	28.0	0.78	1.79	300+	----	
9/30/54	22.1	34.4	32.8	1.58	2.50	268	----	
1/5/55	27.7	37.7	37.3	1.98	2.74	168	----	
2/15/55	29.0	33.6	38.7	2.07	2.44	174	1.04	
3/15/55	30.7	35.8	38.7	2.19	2.60	164	1.02	
4/19/55	28.0	39.6	41.9	2.00	2.87	131	----	
5/6/55	33.3	41.7	45.3	2.38	3.03	152	----	
Site 127, Ashley Co., Ark. Lafe SiL/SiL (ML)								
7/9/54	14.4	3.2	7.3	1.36	0.30	300+	----	
8/17/54	0.6	3.4	7.5	0.06	0.32	300+	----	
9/30/54	8.3	5.4	3.5	0.80	0.51	300+	----	
1/27/55	21.1	16.0	15.0	1.99	1.50	300+	NT	
2/15/55	18.0	17.8	18.2	1.70	1.67	300+	NT	DRY
3/15/55	17.7	16.0	18.0	0.73	1.50	300+	NT	DRY
4/19/55	12.8	15.3	17.8	1.21	1.43	300+	----	DRY
5/6/55	5.2	12.8	15.7	0.49	1.20	300+	----	DRY

Sample Date	Soil Moisture Content, Percent Weight Basis, 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, in./6 in., 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index, 0- to 12-in. Depth	Remolding Index, 0- to 12-in. Depth	Depth to Water Table in.
Site 116, St. Francis Co., Ark. Grenada SiL/SiCL (CL)								
7/7/54	7.9	12.7	14.7	0.74	1.17	300+	----	
8/17/54	9.6	11.8	13.0	0.90	1.09	300+	----	
9/29/54	6.8	10.2	12.9	0.64	0.94	300+	----	
1/4/55	26.3	25.4	17.9	2.46	2.33	250	----	
2/15/55	26.9	26.6	24.2	2.52	2.46	228	0.75	
3/15/55	26.3	26.8	24.1	2.46	2.48	187	0.94	
4/18/55	23.4	23.9	23.5	2.19	2.21	199	----	
5/5/55	17.6	21.4	23.0	1.65	1.98	300	----	
Site 118, Lee Co., Ark. Lintonia SiL/SiL (CL)								
7/7/54	4.7	8.3	11.6	0.42	0.78	300+	----	
8/17/54	7.9	9.6	10.0	0.69	0.90	300+	----	
9/29/54	6.2	9.1	15.7	0.54	0.85	300+	----	
1/5/55	24.2	25.0	23.9	2.12	2.34	244	----	
2/15/55	26.2	25.1	24.4	2.30	2.35	259	NT	
3/15/55	26.0	24.4	25.6	2.28	2.28	244	0.64	
4/18/55	22.8	22.7	24.7	2.00	2.12	239	----	
5/5/55	14.3	20.1	22.6	1.25	1.88	300+	----	
Site 120, Lee Co., Ark. Forestdale SiL/L (CL)								
7/8/54	12.3	5.8	2.9	1.03	0.55	300+	----	
8/17/54	12.4	7.7	6.2	1.03	0.73	300+	----	
9/29/54	17.4	8.7	6.8	1.45	0.83	300+	----	
1/5/55	27.7	19.0	15.1	2.31	1.81	293	----	
2/15/55	24.9	18.8	17.4	2.08	1.79	300+	----	
3/15/55	29.2	17.2	17.3	2.46	1.64	282	NT	
4/19/55	24.6	18.9	19.5	2.05	1.80	204	----	
5/5/55	20.8	23.5	16.2	1.73	2.24	287	----	
Disked abou. 3 in. deep and fertilizer applied before 3/15/55. Plowed befor. 4/19/55.								
Site 122, Phillips Co., Ark. Waverly SiL/SiL (CL-ML)								
7/8/54	11.1	8.8	10.7	0.87	0.75	300+	----	
8/17/54	16.1	9.1	11.0	1.27	0.78	300+	----	
9/29/54	13.5	8.0	11.4	1.06	0.68	300+	----	
1/5/55	31.9	28.2	27.9	2.51	2.40	124	----	
2/15/55	37.2	32.3	29.6	2.92	2.75	107	0.78	DRY
3/15/55	41.1	33.7	32.7	3.23	2.87	61	0.33	6
4/19/55	45.6	37.1	30.9	3.58	3.16	72	----	3
5/5/55	30.1	28.3	29.5	2.37	2.41	111	----	DRY
Site 124, Drew Co., Ark. Dulac SiL/SiL (CL)								
7/8/54	6.2	7.1	11.2	0.54	0.63	300+	----	
8/17/54	6.1	7.3	10.0	0.53	0.65	300+	----	
9/30/54	18.2	19.8	13.0	1.58	1.77	300+	----	
1/5/55	23.5	22.5	22.3	2.04	2.01	151	----	
2/15/55	25.1	24.3	25.3	2.18	2.17	130	0.46	
3/15/55	24.8	24.5	26.0	2.16	2.19	132	0.74	
4/19/55	22.6	22.1	23.1	1.97	1.98	155	----	
5/6/55	15.9	17.6	19.9	1.38	1.57	223	----	
Area burned over before 2/15/55								
Site 126, Ashley Co., Ark. Lexington SiL/SiL (CL-ML)								
7/9/54	13.8	5.9	8.3	1.25	0.57	300+	----	
8/17/54	4.8	6.4	11.3	0.43	0.61	300+	----	
9/30/54	11.4	7.4	10.8	1.03	0.71	300+	----	
1/27/55	22.6	20.6	21.2	2.05	1.88	132	0.62	
2/15/55	21.3	21.5	24.2	1.93	2.06	163	NT	
3/15/55	14.4	15.2	19.0	1.30	1.46	269	NT	
4/19/55	22.5	22.4	21.7	2.04	2.15	108	----	
5/6/55	13.9	16.3	17.0	1.26	1.56	253	----	
Site 128, Ashley Co., Ark. Waverly SiL/SiL (ML)								
7/9/54	17.0	7.6	18.2	1.39	0.69	300+	----	
8/17/54	7.4	6.3	15.0	0.70	0.57	300+	----	
9/30/54	15.6	7.5	12.0	1.27	0.68	300+	----	
1/27/55	32.3	34.0	35.6	2.63	2.10	133	0.18	6
2/15/55	27.9	27.9	26.9	2.28	2.54	138	NT	25
3/15/55	26.7	24.9	28.5	2.18	2.27	151	NT	21
4/19/55	30.1	27.7	30.7	2.46	2.53	178	----	22
5/6/55	24.2	21.6	23.4	1.97	1.97	203	----	DRY

(Continued)

Note: NT = no test.

Table B3a (Continued)

Southern Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, in./6 in.: 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 129, Ashley Co., Ark. Lexington SiL/SiL (CL)								
7/9/54	7.0	7.9	11.9	0.64	0.75	300+	----	
8/17/54	3.6	8.4	11.7	0.33	0.80	300+	----	
9/30/54	7.1	9.1	11.9	0.65	0.86	300+	----	
1/27/55	16.1	20.7	20.7	1.47	1.96	168	0.87	
2/15/55	18.5	23.4	24.1	1.69	2.22	120	NT	
3/15/55	16.9	20.0	22.0	1.54	1.90	187	NT	
4/19/55	19.2	23.8	25.0	1.75	2.26	96	----	
5/6/55	9.6	17.5	20.3	0.88	1.66	246	----	
Site 130, Ashley Co., Ark. Lexington SiL/SiL (CL)								
7/9/54	10.6	5.6	3.0	0.98	0.51	300+	----	
8/17/54	3.5	5.9	7.7	0.32	0.54	300+	----	
9/30/54	6.1	6.8	9.2	0.56	0.62	300+	----	
1/27/55	23.8	24.0	26.1	2.20	2.19	100	0.41	
2/15/55	23.5	24.7	27.2	2.17	2.25	112	NT	
3/15/55	21.5	21.8	22.8	1.99	1.99	147	NT	
4/19/55	22.7	22.9	24.3	2.10	2.09	138	----	
5/6/55	17.8	19.8	22.4	1.64	1.81	198	----	
Site 131, Morehouse Parish, La. Vian SiL/SiL (ML)								
7/26/54	4.6	7.3	9.0	0.41	0.70	275	----	
8/18/54	2.4	4.3	6.7	0.22	0.41	300+	----	
9/30/54	5.0	4.8	6.4	0.45	0.46	300+	----	
1/27/55	11.2	14.0	17.6	1.01	1.34	164	1.18	
2/16/55	11.6	13.0	17.7	1.04	1.25	191	NT	DRY
3/16/55	9.1	13.4	15.1	0.82	1.29	199	NT	DRY
4/19/55	7.6	12.3	17.7	0.68	1.18	165	----	DRY
5/27/55	10.6	14.9	15.7	0.95	1.43	127	----	DRY
Site 132, Morehouse Parish, La. Vian SiL/SL (SC)								
7/26/54	8.1	10.6	11.0	0.75	1.04	300+	----	
8/18/54	2.9	5.8	9.7	0.27	0.57	300+	----	
9/30/54	7.2	6.6	9.2	0.67	0.65	300+	----	
1/28/55	19.7	18.6	20.3	1.82	1.82	126	0.48	
2/16/55	19.3	18.8	18.9	1.78	1.84	136	0.63	
3/16/55	13.8	15.2	19.2	1.28	1.49	211	NT	
4/20/55	14.5	16.0	20.4	1.34	1.56	157	----	
5/27/55	18.9	18.8	19.4	1.75	1.84	125	----	
Site 133, Morehouse Parish, La. Wrightsville SiL/SiL (ML)								
7/26/54	2.6	3.7	4.0	0.25	0.37	300+	----	
8/18/54	1.6	2.4	2.9	0.15	0.24	300+	----	
9/30/54	9.8	4.9	5.3	0.95	0.49	300+	----	
1/28/55	26.1	21.4	22.0	2.52	2.16	139	0.26	
2/16/55	21.6	19.4	19.3	2.09	1.96	218	0.44	13
3/16/55	21.5	17.5	17.8	2.08	1.76	266	NT	21
4/20/55	22.5	15.9	19.9	2.17	1.60	258	----	16
5/27/55	20.3	18.9	18.3	1.96	1.91	257	----	28
Site 134, Ouachita Parish, La. Orangeburg SL/SL (CL-ML)								
7/26/54	5.4	6.0	8.8	0.56	0.64	300+	----	
8/18/54	1.8	4.4	7.4	0.19	0.47	300+	----	
9/30/54	4.8	5.5	8.0	0.50	0.59	300+	----	
1/28/55	15.3	15.0	17.3	1.60	1.60	156	0.66	
2/16/55	15.2	16.6	17.2	1.59	1.77	206	0.60	
3/16/55	7.9	10.0	13.6	0.82	1.07	284	NT	
4/20/55	10.0	12.0	15.6	1.04	1.28	246	----	
5/27/55	14.7	14.6	14.8	1.53	1.56	187	----	
Site 135, Ouachita Parish, La. Thompson SL/SL (SM)								
7/26/54	7.8	7.2	5.5	0.74	0.73	300+	----	
8/18/54	2.2	2.8	3.3	0.21	0.28	300+	----	
9/30/54	6.3	3.4	2.8	0.60	0.34	300+	----	
1/28/55	16.4	13.5	10.6	1.56	1.36	249	NT	
2/16/55	16.0	15.4	14.5	1.53	1.55	240	0.97	
3/16/55	15.6	12.8	10.4	1.49	1.29	300+	NT	
4/20/55	15.3	14.4	14.1	1.46	1.45	198	----	
5/27/55	19.1	16.2	15.6	1.82	1.63	168	----	
Site 136, Ouachita Parish, La. Ruston SL/SL (SM)								
7/26/54	3.6	4.6	8.4	0.35	0.48	300+	----	
8/18/54	1.2	3.2	7.7	0.12	0.33	300+	----	
9/30/54	3.5	3.1	9.2	0.34	0.32	300+	----	
1/28/55	12.4	10.5	14.6	1.22	1.10	231	NT	
2/16/55	12.3	12.7	16.1	1.21	1.33	270	NT	
3/16/55	8.1	8.2	13.9	0.80	0.86	300+	NT	
4/20/55	11.6	10.3	14.9	1.14	1.08	262	----	
5/27/55	13.4	11.6	16.9	1.32	1.21	171	----	
Site 137, Grant Parish, La. Ruston SL/SL (SC)								
7/27/54	3.2	9.7	11.0	0.30	0.92	300+	----	
8/18/54	2.2	8.6	9.5	0.21	0.82	300+	----	
10/12/54	8.0	8.9	11.3	0.75	0.84	300+	----	
11/3/54	9.2	12.1	10.9	0.86	1.15	300+	----	
2/16/55	12.3	17.7	17.6	1.15	1.58	273	0.88	
3/16/55	9.7	14.9	14.6	0.91	1.41	300+	NT	
4/20/55	13.9	14.6	17.0	1.30	1.38	294	----	
5/27/55	12.4	13.8	12.1	1.16	1.31	300	----	
Site 138, Grant Parish, La. Ochlockonee SiL/SiL (CL-ML)								
7/27/54	10.9	9.2	6.8	0.73	0.65	282	----	
8/18/54	8.7	7.5	6.3	0.58	0.53	296	----	
10/12/54	12.9	9.0	5.1	0.86	0.64	277	----	
11/3/54	12.2	8.1	6.4	0.81	0.57	260	----	
2/16/55	27.5	22.2	22.1	1.83	1.57	114	0.96	
3/16/55	23.3	20.8	17.5	1.55	1.47	127	NT	
4/20/55	28.6	23.2	21.8	1.90	1.64	117	----	
5/27/55	23.7	21.4	16.2	1.58	1.52	155	----	
Area burned over before 3/16/55								
Flooded before 4/20/55								
Site 139, Grant Parish, La. Bowie SL/L (CL)								
7/27/54	6.7	12.7	14.5	0.59	1.15	300+	----	
8/18/54	4.1	6.1	12.6	0.36	0.55	300+	----	
10/12/54	9.6	9.3	14.2	0.84	0.84	300+	----	
11/3/54	8.0	11.6	14.2	0.70	1.05	300+	----	
2/16/55	21.0	22.0	22.5	1.84	1.99	189	0.92	
3/16/55	15.9	17.5	19.6	1.39	1.59	214	NT	
4/20/55	18.7	21.6	21.1	1.64	1.96	171	----	
5/27/55	Skipped - road closed							
Site 140, Rapides Parish, La. Yahala SiL/SiL (ML)								
7/27/54	10.6	11.0	16.7	0.92	1.00	300+	----	
8/18/54	7.1	7.6	11.3	0.61	0.69	300+	----	
10/12/54	27.7	10.9	7.5	2.39	0.99	300	----	
11/3/54	16.2	13.7	14.0	1.40	1.24	300+	----	
2/16/55	23.9	25.6	27.0	2.06	2.32	300+	NT	
3/16/55	19.0	22.4	25.4	1.56	2.03	288	NT	
4/20/55	24.1	23.6	26.7	2.08	2.14	247	----	
5/27/55	16.9	20.5	24.7	1.46	1.86	278	----	
Site 141, Rapides Parish, La. Savannah SiL/SiL (CL)								
7/27/54	3.8	7.5	11.9	0.31	0.72	300+	----	
8/18/54	10.2	8.2	12.7	0.84	0.78	300+	----	
10/12/54	10.2	10.1	13.2	0.84	0.96	300+	----	
11/3/54	17.6	16.7	19.3	1.46	1.59	300	----	
2/16/55	26.7	23.5	25.6	2.21	2.15	159	0.72	
3/16/55	24.0	21.3	23.6	1.99	2.03	168	0.64	
4/20/55	23.8	21.6	22.4	1.97	2.06	158	----	
5/27/55	24.2	21.1	22.1	2.00	2.01	171	----	
Site 142, Rapides Parish, La. Caddo SiL/SiL (ML)								
7/27/54	2.3	3.6	4.9	0.23	0.42	300+	----	
8/18/54	9.3	3.6	5.7	0.77	0.42	300+	----	
10/12/54	9.2	6.1	5.6	0.76	0.54	300+	----	
11/3/54	19.3	18.1	19.0	1.60	1.63	297	----	
2/16/55	36.6	31.0	28.2	3.03	2.77	196	0.38	6
3/16/55	32.6	29.0	26.7	2.70	2.58	196	0.30	28
4/20/55	35.4	28.7	25.7	2.93	2.55	171	----	28
5/27/55	30.2	25.2	23.8	2.50	2.24	220	----	26

(Continued)

Note: NT = no test.

Table B3a (Continued)

Southern Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, in./6 in.: 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 143, Livingston Parish, La. — Olivier SiL/SiL (CL-ML)								
7/28/54	24.0	19.2	14.7	3.11	1.50	300	----	
9/19/54	12.2	8.0	13.2	0.99	0.74	300+	----	
10/13/54			Raining					
11/2/54	20.6	19.3	19.9	1.66	1.78	300	----	
2/17/55	29.7	26.6	26.1	2.41	2.37	173	NT	DRY
3/17/55	13.4	13.7	19.3	1.09	1.27	300+	NT	DRY
4/21/55	26.5	22.3	24.8	2.15	2.06	255	----	DRY
5/28/55	11.0	11.2	14.6	0.89	1.03	300+	----	DRY
Site 144, Livingston Parish, La. — Olivier SiL/SiL (CL-ML)								
7/28/54	23.5	11.3	18.0	1.73	1.12	300	----	
9/19/54	7.2	9.2	15.2	0.59	0.91	300+	----	
10/13/54			Raining					
11/2/54	24.9	19.6	19.4	2.05	1.94	255	----	
2/17/55	29.0	19.3	24.9	2.38	1.96	300	NT	
3/17/55	12.9	17.6	19.1	1.06	1.74	300+	NT	
4/21/55	27.6	19.9	23.4	2.27	1.97	250	----	
5/28/55	14.8	13.2	13.2	1.22	1.32	300+	----	
Site 145, St. Tammany Parish, La. — Calhoun SiL/SiL (ML)								
7/28/54	20.7	17.1	17.1	1.74	1.58	294	----	
9/19/54	6.7	13.4	16.6	0.50	1.24	300+	----	
10/13/54			Flooded					
11/2/54	25.1	22.8	22.3	2.11	2.11	140	----	
2/17/55	32.5	27.4	23.7	2.73	2.53	105	0.28	DRY
3/17/55	25.7	1.4	24.2	2.26	1.38	171	0.50	30
4/21/55	26.7	22.5	22.9	2.24	2.08	176	----	23
5/28/55	16.8	17.3	20.6	1.41	1.60	245	----	DRY
Site 146, St. Tammany Parish, La. — Richland SiL/SiL (ML)								
7/28/54	24.1	17.3	16.8	1.91	1.66	254	----	
9/19/54	7.4	9.2	15.1	0.59	0.88	300+	----	
10/13/54	26.4	23.9	23.5	3.09	2.39	127	----	
11/2/54	24.0	21.3	20.5	1.90	1.84	195	----	
2/17/55	28.9	21.4	25.2	2.29	2.05	133	0.58	DRY
3/17/55	21.9	15.7	19.2	1.73	1.51	249	NT	DRY
4/21/55	27.3	22.0	22.7	2.16	2.11	124	----	DRY
5/28/55	12.3	11.7	15.1	0.97	1.12	300+	----	DRY
Site 147, Pearl River Co., Miss. — Savannah L/L (CL)								
7/28/54	19.9	13.8	18.5	1.77	1.76	237	----	
8/19/54	4.1	6.2	10.6	0.36	0.58	300+	----	
10/13/54	21.7	19.9	19.1	1.93	1.96	215	----	
11/2/54	16.3	17.8	19.8	1.45	1.67	237	----	
2/17/55	19.5	20.8	21.1	1.73	1.95	165	0.92	
3/17/55	9.0	14.3	18.3	0.80	1.34	238	NT	
4/21/55	17.6	17.3	19.1	1.56	1.67	209	----	
5/28/55	11.6	16.0	18.6	1.03	1.50	225	----	
Site 148, Pearl River Co., Miss. — Susquehanna L/CL (CL)								
7/28/54	12.7	15.6	23.6	1.17	1.53	291	----	
8/19/54	3.3	15.8	21.3	0.30	1.55	300+	----	
10/13/54	22.6	25.5	27.1	2.09	2.49	146	----	
11/2/54	24.5	22.5	25.0	2.26	2.20	156	----	
2/17/55	16.7	22.8	26.8	1.54	2.23	192	0.38	
3/17/55	6.5	19.1	23.5	0.60	1.87	277	NT	
4/21/55	13.1	21.3	24.2	1.21	2.13	203	----	
5/28/55	13.4	21.8	24.9	1.24	2.13	197	----	
Site 149, Pearl River Co., Miss. — Sawyer SiL/L (ML)								
7/28/54	16.7	13.9	16.8	1.50	1.46	277	----	
8/19/54	4.9	11.3	13.2	0.44	1.19	300+	----	
10/13/54	17.6	16.6	17.6	1.58	1.74	229	----	
11/2/54	12.7	14.5	18.1	1.14	1.52	227	----	
2/17/55	21.5	13.5	20.2	1.94	1.34	271	NT	
3/17/55	12.9	15.2	17.4	1.16	1.60	241	NT	
4/21/55	16.3	15.9	18.5	1.47	1.67	238	----	
5/28/55	8.8	11.8	15.3	0.79	1.24	300+	----	
Site 201, Hinds Co., Miss. — Falaya SiL/SiL (ML)								
5/26/54	31.1	25.3	25.3	2.50	2.15	294	----	
8/24/54	6.1	4.9	6.3	0.49	0.40	300+	----	
9/10/54	19.2	10.0	5.1	1.54	0.82	300+	----	
10/29/54	25.8	21.5	20.1	2.07	1.77	300	----	
1/31/55	33.5	31.1	30.1	2.69	2.56	262	0.77	
2/28/55	32.6	27.3	28.5	2.62	2.24	285	0.56	
3/29/55	30.8	27.3	26.8	2.48	2.24	293	----	
5/3/55	26.9	22.7	25.0	2.16	1.87	300	----	
Site 202, Hinds Co., Miss. — Loring SiL/SiL (ML)								
5/26/54	18.1	19.0	21.6	1.37	1.53	257	----	
8/24/54	5.3	4.8	9.1	0.40	0.35	300+	----	
9/10/54	5.1	5.0	7.0	0.39	0.40	300+	----	
10/29/54	12.9	6.6	6.4	0.98	0.53	300+	----	
11/30/54	10.9	10.3	13.5	0.82	0.82	300+	----	
1/31/55	28.7	27.5	28.0	2.17	2.19	135	0.45	
2/28/55	27.5	27.1	27.4	2.08	2.16	151	0.30	
3/29/55	26.2	27.4	24.3	1.98	2.19	195	----	
5/3/55	18.2	21.4	21.2	1.38	1.71	268	----	
Site 203, Hinds Co., Miss. — Loring SiL/SiL (CL)								
5/26/54	21.5	19.6	24.5	1.64	1.63	226	----	
8/24/54	6.4	8.2	15.2	0.49	0.68	300+	----	
9/10/54	4.0	8.5	15.0	0.30	0.71	300+	----	
10/29/54	9.0	8.5	14.3	0.69	0.71	300+	----	
11/30/54	13.8	12.2	15.3	1.05	1.02	300+	----	
1/31/55	29.6	27.3	27.7	2.26	2.28	172	0.65	
2/28/55	28.2	26.2	25.9	2.15	2.19	150	0.62	
3/29/55	27.2	24.2	24.1	2.07	2.02	178	----	
5/3/55	21.0	20.0	23.7	1.60	1.67	228	----	
Site 204, Hinds Co., Miss. — Falaya SiL/Si (ML)								
5/26/54	25.0	24.4	28.3	2.01	2.05	300	----	
8/24/54	14.4	8.7	8.2	1.16	0.73	300+	----	
9/10/54	4.2	5.3	9.6	0.34	0.45	300+	----	
10/29/54	12.5	9.3	10.2	1.00	0.73	300+	----	
11/30/54	16.4	14.2	12.7	1.32	1.19	300+	----	
1/31/55	27.3	25.3	27.3	2.19	2.13	300+	NT	
2/28/55	28.5	25.7	28.2	2.29	2.16	300+	NT	
3/29/55	25.6	25.3	28.3	2.06	2.13	300+	----	
5/3/55	23.2	23.3	26.3	1.87	1.96	300+	----	
Site 205, Hinds Co., Miss. — Calhoun SiL/Si (ML)								
5/26/54	26.4	24.1	26.8	2.12	2.00	278	----	
8/24/54	15.5	7.2	6.4	1.25	0.50	300+	----	
9/10/54	9.0	6.3	6.4	0.64	0.52	300+	----	
10/29/54	16.4	8.3	7.7	1.32	0.59	300+	----	
11/30/54	21.4	14.4	8.1	1.72	1.19	300+	----	
1/31/55	28.4	29.7	25.3	2.28	2.46	267	0.56	
2/28/55	29.4	30.4	26.5	2.36	2.52	231	0.26	
3/28/55	30.5	28.4	28.7	2.45	2.35	263	----	
5/3/55	28.8	25.3	23.7	2.32	2.09	285	----	
Site 206, Hinds Co., Miss — Olivier SiL/SiL (CL)								
5/26/54	19.1	22.0	24.2	1.67	1.93	282	----	
8/24/54	15.2	12.2	14.2	1.33	1.07	300+	----	
9/10/54	6.2	9.5	13.2	0.54	0.83	300+	----	
10/29/54	16.5	12.4	13.5	1.45	1.09	300+	----	
11/30/54	21.6	21.1	16.2	1.89	1.85	300+	----	
1/31/55	29.0	30.5	27.5	2.56	2.67	204	0.52	
2/28/55	29.7	27.4	27.9	2.60	2.40	159	0.62	
3/28/55	17.9	20.5	22.6	1.56	1.80	300+	----	
5/3/55	9.7	16.3	22.6	0.85	1.47	300+	----	
Site 207, Hinds Co., Miss. — Grenada SiL/SiL (CL)								
5/26/54	28.2	24.2	26.6	2.37	2.12	191	----	
8/24/54	11.2	7.8	9.7	0.94	0.68	300+	----	
9/10/54	6.0	7.7	10.2	0.50	0.67	300+	----	
10/29/54	14.3	9.8	11.6	1.20	0.86	300+	----	
11/30/54	22.5	21.2	15.7	1.89	1.86	300+	----	
1/31/55	31.3	29.9	30.0	2.73	2.62	165	0.62	
2/28/55	33.3	29.8	29.5	2.80	2.61	142	0.50	
3/28/55	27.7	25.1	25.9	2.42	2.20	200	----	
5/3/55	20.6	21.4	24.5	1.72	1.87	264	----	

Hardpan - 22.5 inches

(Continued)

Note NT = no test.

Table B3a (Continued)

Southern Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Cone Index, in./6 in.: 0- to 6-in. Depth	6- to 12-in. Depth	Remolding Index: 0- to 12-in. Depth	Remolding Index: 6- to 12-in. Depth	Depth to Water Table in.
Site 208, Hinds Co., Miss. — Henry SiCL/SiCL (CL)								
5/26/54	20.2	23.0	26.1	1.77	1.99	176	----	
6/24/54	15.3	12.5	14.9	1.34	1.09	300+	----	
9/10/54	13.3	12.0	14.0	1.21	1.04	300+	----	
10/30/54	17.6	12.5	15.1	1.54	1.08	300+	----	
11/30/54	23.5	21.1	19.3	2.06	1.32	300+	----	
1/31/55	31.3	32.0	32.5	2.74	2.76	118	0.66	13
2/28/55	29.3	29.0	31.1	2.57	2.51	102	0.59	16
3/28/55	29.0	29.5	29.5	2.45	2.29	171	----	13
5/3/55	20.7	25.0	30.3	1.81	2.15	209	----	
Sample, 36-in.								
Site 209, Hinds Co., Miss. — Calloway, SiL/SiL (CL-ML)								
5/26/54	27.1	24.3	25.3	2.13	1.35	191	----	
6/24/54	11.3	7.7	9.7	0.33	0.59	300+	----	
9/10/54	14.1	11.6	9.9	1.11	0.88	300+	----	
10/30/54	9.6	9.2	8.0	0.75	0.60	300+	----	
11/30/54	20.4	12.3	11.2	1.60	0.94	300+	----	
1/31/55	30.2	30.0	29.6	2.37	2.29	130	0.46	
2/28/55	38.3	33.3	32.9	3.05	2.54	76	0.48	
3/28/55	32.4	30.7	31.3	2.55	2.34	90	----	
5/3/55	29.2	26.3	27.1	2.30	2.00	176	----	
Sample, 22-in.								
Site 210, Scott Co., Miss. — Okitibbeha, CL/C (CH)								
7/21/54	14.4	20.0	23.2	1.28	1.79	300+	----	
8/24/54	16.0	23.5	22.8	1.42	2.10	300+	----	
9/10/54	13.9	22.9	24.9	1.23	2.05	300+	----	
11/30/54	22.1	17.7	30.7	1.96	1.58	300+	----	
1/31/55	24.0	31.9	38.3	2.13	2.85	140	1.33	
2/28/55	25.5	30.5	34.4	2.26	2.74	129	1.26	
3/28/55	19.2	24.6	25.3	1.70	2.20	186	----	
5/3/55	19.0	24.7	26.8	1.69	2.21	221	----	
Site 211, Scott Co., Miss. — Vaiden SiCL/SiC (CH)								
3/24/54	22.1	27.1	28.2	1.62	2.10	267	----	
9/10/54	23.1	24.3	26.4	1.69	1.88	300+	----	
11/30/54	30.3	26.0	24.2	2.24	2.01	286	----	
1/31/55	30.4	31.6	35.5	2.23	2.45	157	1.05	
2/28/55	31.9	34.8	33.1	2.34	2.69	156	1.14	
3/28/55	23.5	25.1	27.3	2.09	1.94	196	----	
5/3/55	20.0	25.5	25.3	1.46	1.97	263	----	
Site 212, Scott Co., Miss. — Eutaw L/L (CL)								
7/21/54	16.7	12.6	12.9	1.64	1.32	268	----	
8/24/54	15.9	9.0	13.5	1.56	0.94	300	----	
9/10/54	4.9	7.2	12.1	0.47	0.75	300+	----	
11/30/54	21.1	18.1	18.1	2.08	1.87	218	----	
1/31/55	20.7	22.1	23.7	2.04	2.31	102	0.60	
2/28/55	23.3	19.3	21.7	2.29	2.05	107	0.74	
3/28/55	21.0	20.4	21.1	2.07	2.13	107	----	
5/3/55	10.4	14.3	19.4	1.02	1.49	172	----	
Site 213, Scott Co., Miss. — Eutaw SiL/SiCL (CL)								
7/21/54	19.6	21.2	20.7	1.79	1.93	272	----	
8/24/54	16.7	15.7	17.4	1.52	1.43	300	----	
9/10/54	10.1	15.0	19.1	0.92	1.37	300+	----	
11/30/54	26.6	25.7	20.7	2.43	2.34	234	----	
1/31/55	27.2	26.0	28.6	2.48	2.37	126	1.00	
2/28/55	26.9	26.0	27.2	2.45	2.37	127	1.26	
3/28/55	22.3	25.0	25.1	2.03	2.28	170	----	
5/3/55	13.3	20.0	22.9	1.21	1.82	170	----	
Site 214, Newton Co., Miss. — Prentiss SiL/SiL (CL)								
5/27/54	17.5	20.7	21.0	1.67	1.96	192	----	
8/24/54	13.0	11.6	9.9	1.24	1.10	300+	----	
9/10/54	4.1	9.0	7.8	0.39	0.85	300+	----	
11/13/54	13.4	20.4	13.6	1.28	1.93	281	----	
1/31/55	20.9	25.5	25.0	1.99	2.42	150	0.59	
2/28/55	20.7	24.7	25.7	1.97	2.34	145	0.84	
3/28/55	19.5	22.1	21.0	1.83	2.10	170	----	
5/3/55	13.5	20.1	18.7	1.29	1.91	245	----	
Sample, 18-in.								
Site 215, Newton Co., Miss. — Mantachie SL/SL (SM)								
7/21/54	18.9	12.2	13.7	1.76	1.12	300+	----	
8/24/54	12.9	6.8	7.1	1.20	0.62	300+	----	
9/10/54	4.7	4.6	8.0	0.44	0.42	300+	----	
11/13/54	16.0	11.7	13.6	1.49	1.07	300+	----	
1/31/55	24.2	21.7	21.7	2.25	1.99	260	NT	
2/28/55	23.7	20.2	20.4	2.20	1.85	245	NT	
3/28/55	17.0	23.1	20.4	1.58	2.12	300	----	
5/3/55	18.6	14.6	18.4	1.73	1.34	269	----	
Site 216, Newton Co., Miss. — Tilden L/L (CH)								
7/21/54	10.0	17.4	16.6	0.94	1.63	300+	----	
8/24/54	11.7	9.1	11.3	1.10	0.85	300+	----	
9/10/54	2.7	11.4	12.0	0.25	1.07	300+	----	
11/13/54	14.9	20.1	17.3	1.39	1.88	300+	----	
1/31/55	15.6	21.7	23.6	1.46	2.03	188	0.92	
2/28/55	Site dropped							
Site 217, Newton Co., Miss. — Susquehanna SiL/SiCL (CL)								
7/21/54	15.0	20.8	21.4	1.35	1.88	300	----	
8/24/54	13.5	17.3	23.1	1.66	1.57	300+	----	
9/10/54	4.8	12.0	20.1	0.43	1.09	300+	----	
11/13/54	19.9	21.7	22.9	1.79	1.97	300+	----	
1/31/55	22.6	23.5	29.2	2.03	2.13	226	1.09	
2/28/55	26.0	27.3	28.1	2.34	2.47	176	0.88	
3/28/55	18.3	20.7	24.9	1.65	1.88	265	----	
5/3/55	7.2	18.8	28.1	0.65	1.70	271	----	
Oats drilled 12 in., 1/31/55								
Site 218, Newton Co., Miss — Shucuta LS/SL (SM-SC)								
7/21/54	6.7	12.4	23.0	0.56	1.12	300+	----	
8/24/54	12.2	16.4	21.2	1.02	1.48	258	----	
9/10/54	2.3	7.6	21.4	0.19	0.68	300+	----	
11/13/54	8.4	13.1	20.1	0.71	1.18	300+	----	
1/31/55	15.3	19.4	26.3	1.29	1.75	256	NT	
2/28/55	14.8	18.4	26.4	1.24	1.66	235	NT	
3/28/55	10.5	16.7	27.4	0.88	1.50	287	----	
5/3/55	5.5	9.3	24.1	0.46	0.84	300	----	
Site 219, Noxubee Co., Miss — Brooksville CL/SiCL (CH)								
7/12/54	10.2	17.7	20.0	0.92	1.67	300+	----	
8/10/54	15.3	25.4	24.5	1.38	2.39	300+	----	
9/13/54	12.4	21.9	25.4	1.12	2.06	300+	----	
12/2/54	25.4	31.2	32.2	2.29	2.94	278	----	
2/1/55	26.9	30.0	32.8	2.42	2.83	223	1.31	
3/1/55	30.5	31.7	33.3	2.74	2.99	205	1.12	
3/28/55	24.9	27.8	30.5	2.24	2.62	270	----	
5/13/55	12.0	18.2	31.3	1.08	1.71	300+	----	
Disked before 12/2/54								
Site 220, Noxubee Co., Miss. — Vaiden SiCL/C (CH)								
7/12/54	15.3	17.4	20.6	1.34	1.59	300+	----	
8/10/54	14.9	17.6	13.4	1.31	1.61	300+	----	
9/13/54	11.4	12.3	15.8	1.00	1.12	300+	----	
12/2/54	26.2	26.4	26.7	2.30	2.41	267	----	
2/1/55	28.8	29.7	29.2	2.52	2.71	267	1.06	
3/1/55	25.9	29.5	27.1	2.27	2.69	214	NT	
3/28/55	23.3	27.8	28.7	2.08	2.54	261	----	
5/18/55	14.9	20.4	18.8	1.31	1.86	300+	----	
Site 221, Noxubee Co., Miss. — Hunt SiL/SiCL (CH)								
7/12/54	9.6	16.0	19.3	0.90	1.49	300+	----	
8/10/54	9.5	16.0	18.4	0.89	1.49	300+	----	
9/13/54	9.0	14.2	15.8	0.35	1.32	300+	----	
12/2/54	24.3	27.2	26.1	2.29	2.53	268	----	
2/1/55	24.3	27.0	28.0	2.29	2.51	271	NT	
3/1/55	24.7	27.2	27.2	2.33	2.53	236	1.15	
3/28/55	20.8	25.3	27.5	1.96	2.40	261	----	
5/18/55	12.3	19.3	22.3	1.21	1.84	300+	----	

(Continued)

Note NT = no test.

Table B3a (Continued)

Southern Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis, 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, in./6 in., 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index, 6- to 12-in. Depth	Remolding Index, 6- to 12-in. Depth	Depth to Water Table in.
Site 222, Oktibbeha Co., Miss. Kaufman L/L (CL)								
7/13/54	10.9	12.2	13.6	0.99	1.20	300+	----	
8/10/54	7.1	7.6	10.0	0.64	0.75	300+	----	
9/13/54	10.0	10.9	10.4	0.91	1.07	300+	----	
12/2/54	20.4	18.9	17.0	1.85	1.86	259	----	
2/1/55	21.8	19.4	23.5	1.98	1.91	219	0.90	
3/1/55	13.5	18.0	21.3	1.68	1.77	222	1.15	
3/29/55	19.4	18.2	20.6	1.76	1.79	256	----	
5/18/55	8.7	11.3	12.9	0.79	1.11	300+	----	
Site 223, Oktibbeha Co., Miss. Leeper L/CL (CL)								
7/13/54	21.7	19.7	20.8	1.80	1.86	300+	----	
8/10/54	12.3	15.0	15.6	1.02	1.41	300+	----	
9/13/54			Plowed					
12/2/54			Plowed					
2/1/55	28.4	26.5	25.9	2.35	2.50	132	0.98	
3/1/55	27.7	28.2	28.2	2.29	2.66	105	1.22	
3/29/55	25.8	25.4	26.7	2.14	2.39	121	----	
5/18/55	20.3	26.5	26.2	1.68	2.50	300+	----	
Site 224, Webster Co., Miss. Eutaw SiL/SiCL (CL)								
7/13/54	13.6	14.4	13.7	0.87	1.21	300+	----	
8/10/54	12.3	17.4	17.1	0.79	1.46	300+	----	
9/13/54	11.9	13.9	15.3	0.76	1.17	300+	----	
12/3/54	36.6	29.6	28.5	2.35	2.49	154	----	
2/1/55	33.7	32.0	30.8	2.16	2.69	138	0.86	
3/1/55	34.6	30.1	30.0	2.22	2.53	126	0.84	
3/29/55	26.1	30.1	27.1	1.63	2.53	136	----	
5/19/55	20.4	23.8	23.8	1.31	2.00	223	----	
Site 225, Webster Co., Miss. Eutaw SiL/SiCL (CL)								
7/13/54	11.6	16.9	19.5	0.98	1.49	300+	----	
8/10/54	11.9	14.9	15.7	1.01	1.31	300+	----	
9/13/54	11.2	12.7	14.4	0.95	1.12	300+	----	
12/3/54	30.5	30.3	27.7	2.58	2.67	145	----	
2/1/55	31.9	30.9	31.1	2.70	2.73	137	0.61	
3/1/55	34.2	29.7	28.9	2.89	2.62	129	0.72	
3/29/55	31.4	32.4	31.1	2.66	2.86	127	----	
5/19/55	19.6	26.2	25.5	1.66	2.31	157	----	
Site 226, Webster Co., Miss. Geiger SiL/SiCL (CL)								
7/13/54	16.5	19.3	21.1	1.38	1.61	300+	----	
8/10/54	13 3	20.1	20.1	1.11	1.68	300+	----	
9/13/54	10 5	13.4	17.2	0.88	1.12	300+	----	
12/3/54	32.5	34.8	35.6	2.71	2.90	116	----	
2/1/55	32.7	34.3	35.4	2.73	2.86	94	0.96	
3/1/55	36.0	33 7	34 9	3.00	2.81	91	0.77	
3/29/55	32.1	33.0	36.5	2.68	2.75	122	----	
5/19/55			Plowed					
Site 227, Pontotoc Co., Miss. Falkner SiL/SiL (CL-ML)								
7/13/54	6.4	5.8	7.3	0.59	0.57	300+	----	
8/10/54	3.6	3.6	5.3	0.33	0.35	300+	----	
9/13/54	2.3	4.4	6.6	0.21	0.43	300+	----	
12/3/54	17.9	18.3	12.5	1.64	1.79	300+	----	
2/1/55	19.0	21.9	23.5	1.74	2.14	123	0.42	
3/1/55	18.2	21.0	24.2	1.67	2.05	112	0.44	
3/29/55	21.2	20.3	21.4	1.95	1.99	160	----	
5/19/55	18.0	17.6	20.3	1.65	1.72	213	----	
Site 228, Pontotoc Co., Miss. Falaya SiL/L (CL)								
7/13/54	11.9	12.7	13.0	1.04	1.15	300+	----	
8/10/54	10.8	12.2	14.2	0.95	1.11	300+	----	
9/13/54	9.1	10.8	12 3	0.80	0.93	300+	----	
12/3/54	25.0	19.6	12.9	2.19	1.78	244	----	
2/1/55	28.3	26.1	25.0	2.48	2.36	124	0.92	
3/1/55	26.5	28.1	26.7	2.32	2.55	103	0.90	
3/29/55	26.5	23.8	25.1	2.32	2.16	132	----	
5/19/55	22.9	24.1	25.4	2.01	2.18	111	----	
Area cleared, timber cut before 3/1/55								
Site 229, Pontotoc Co., Miss. Ecru SiL/SiL (CL)								
7/13/54	4.0	8.3	12.4	0.36	0.79	300+	----	
8/10/54	5.6	10.5	12.0	0.50	1.00	300+	----	
9/13/54	3.4	8.7	11.9	0.31	0.82	300+	----	
12/3/54	20.8	20.1	18.8	1.87	1.91	205	----	
2/1/55	21.4	21.5	25.3	1.93	2.04	192	0.88	
3/1/55	20.6	19.6	22.5	1.85	1.86	182	0.94	
3/29/55	21.5	21.3	24.2	1.94	2.02	212	----	
5/19/55	15.8	18.7	21.9	1.42	1.77	267	----	
Site 230, Prentiss Co., Miss. Franklinton SiL/SiL (CL)								
7/14/54	4.6	8.1	9.8	0.38	0.70	300+	----	
8/10/54	6.2	8.1	11.8	0.51	0.70	300+	----	
9/13/54	4.2	6.5	8.7	0.34	0.57	300+	----	
12/13/54	22.5	21.9	22.0	1.84	1.91	196	----	
2/1/55	25.4	24.0	26.5	2.07	2 09	156	0.56	
3/1/55	25.3	24.3	26.3	2.06	2.11	115	0.78	
3/29/55	28.2	26.3	27.5	2.30	2 29	114	----	
5/19/55	10.7	15.8	23.1	0.87	1.37	250	----	
Site 231, Prentiss Co., Miss. Shubuta SCL/C (CH)								
7/14/54	10.9	19.7	20.0	0.88	1.54	300+	----	
8/10/54	12.6	23.7	20.2	1.01	1.85	300+	----	
9/13/54	10.2	21.1	18.6	0.82	1.65	300+	----	
12/13/54	30.5	35.2	32.3	2.45	2.75	181	----	
2/1/55	31.3	36.1	33.6	2.52	2.82	196	1.26	
3/1/55	25.2	32.3	33.1	2.03	2.52	211	1.03	
3/29/55	25.1	33.8	32.1	2.02	2.64	207	----	
5/19/55	15.7	28.5	29.1	1.26	2.22	246	----	
Site 232, Prentiss Co., Miss. Collins L/L (CL)								
8/10/54	8 7	14.4	19.0	0.74	1.36	300+	----	
9/13/54	8 7	8.8	8.3	0.74	0.83	300+	----	
12/13/54	26.1	23.4	18.5	2.22	2.20	300	----	
2/2/55	26.7	32.2	30.6	2.27	3.03	179	0.38	12
3/1/55	30 0	32.7	30.9	2.56	3.08	171	0.47	16
3/29/55	28.1	28.5	27.6	2.39	2.68	189	----	17
5/19/55	21.4	25.9	24.6	1.82	2.44	232	----	DRY
Flooded before 2/2/55 and 3/29/55								
Site 233, Alcorn Co., Miss. Waverly SiL/SiL (CL)								
7/14/54	7.0	10.6	16.8	0.61	0.97	300+	----	
8/11/54	3.6	8.8	11.4	0.75	0.80	300+	----	
9/14/54	6.2	8.5	11.7	0.54	0.78	300+	----	
12/13/54	24.4	23.0	16.6	2.12	2.10	300+	----	
2/2/55	29.6	27.7	29.6	2.58	2.53	191	0.52	DRY
3/1/55	32.2	30.0	34.5	2.80	2.74	148	0.35	7
3/29/55	31.6	31.6	33.5	2.75	2.88	133	----	7
5/19/55	25.6	23.6	26.5	2.23	2.15	211	----	DRY
Flooded before 3/29/55								
Site 234, Alcorn Co., Miss. Lexington SiL/SiL (CL)								
7/14/54	3.2	7.3	12.2	0.26	0.64	300+	----	
8/11/54	4.8	7.0	11.4	0.38	0.61	300+	----	
9/14/54	2.3	7.8	11.5	0.18	0.68	300+	----	
12/13/54	13.7	14.2	13.8	1.09	1.24	264	----	
2/2/55	22.2	23.5	22.8	1.77	2.04	126	0.65	
3/2/55	21.7	22.0	24.6	1.73	1.91	155	0.82	
3/29/55	21.7	22.3	25.8	1.73	1.94	124	----	
5/19/55	8.2	9	18.6	0.65	0.94	300	----	
Site 235, Alcorn Co., Miss. Olivier SiL/SiL (CL)								
7/14/54	8.0	9.0	12.1	0.70	0.87	300+	----	
8/11/54	11.0	14.7	11.4	0.96	1.42	300+	----	
9/14/54	4.1	5.8	7.5	0.36	0.56	300+	----	
12/13/54	22.2	19.9	13.1	1.94	1.92	300+	----	
2/2/55	26.6	25.0	22.8	2.33	2.42	151	0.60	
3/2/55	29.3	25.1	23.6	2.57	2.42	167	0.53	
3/29/55	29.5	27.6	28.2	2.58	2.67	164	----	
5/19/55	9.3	14.0	18.2	0.81	1.35	300+	----	

(Continued)

Note: NT = no test.

Table B3a (Continued)

Southern Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis, 0- to 6-in. Depth	Soil Moisture Content, Percent Weight Basis, 6- to 12-in. Depth	Soil Moisture Content, Percent Weight Basis, 12- to 18-in. Depth	Soil Moisture Content, in./5 in., 0- to 6-in. Depth	Soil Moisture Content, in./5 in., 6- to 12-in. Depth	Cone Index, 6- to 12-in. Depth	Remolding Index, 6- to 12-in. Depth	Depth to Water Table in.
Site 236, McNairy Co., Tenn. Olivier SiL/SiL (CL)								
7/14/54	3.6	6.7	14.8	0.32	0.63	300+	----	
8/11/54	21.4	20.6	22.8	1.93	1.94	214	----	
9/14/54	5.0	7.3	11.4	0.45	0.69	300+	----	
12/13/54	23.1	21.4	19.4	2.08	2.02	183	----	
2/2/55	26.8	31.7	31.3	2.41	2.99	100	0.46	
3/2/55	29.5	29.0	30.6	2.66	2.73	98	0.32	10
3/29/55	32.1	28.6	28.6	2.89	2.69	113	----	17
5/19/55	23.0	19.9	23.3	2.07	1.87	212	----	DRY
Site 237, McNairy Co., Tenn. Lexington SiL/SiL (CL)								
7/14/54	6.1	11.6	13.0	0.49	1.04	300+	----	
8/11/54	4.6	8.7	14.8	0.37	0.78	300+	----	
9/14/54	4.5	10.9	14.9	0.36	0.98	300+	----	
12/13/54	15.6	17.1	19.0	1.25	1.54	273	----	
2/2/55	22.8	22.9	25.5	1.83	2.06	121	0.84	
3/2/55	23.8	23.7	26.3	1.91	2.13	147	0.71	
3/29/55	23.5	24.9	24.9	1.89	2.24	191	----	
5/19/55	11.0	16.3	22.3	0.88	1.47	300	----	
Site 238, Madison Co., Tenn. Waverly SiL/SiL (CL)								
7/15/54	6.3	9.4	10.6	0.51	0.81	300+	----	
8/11/54	6.9	10.9	9.4	0.55	0.94	300+	----	
9/14/54			Plowed					
12/14/54	25.3	24.4	17.6	2.03	2.11	210	----	
2/2/55	29.7	27.3	24.6	2.39	2.36	235	0.76	DRY
3/2/55	32.0	30.2	28.9	2.57	2.61	160	0.46	9
3/29/55	34.2	32.3	29.0	2.75	2.79	155	----	
5/19/55	24.5	27.0	26.2	1.97	2.33	231	----	DRY
Site 239, Madison Co., Tenn. Independence SL/SL (SM)								
7/15/54	1.6	0.8	0.7	0.14	0.08	300+	----	
8/11/54	2.3	0.6	1.9	0.21	0.06	300+	----	
9/14/54	4.7	2.5	1.9	0.42	0.24	300+	----	
12/14/54	15.1	12.8	9.9	1.35	1.25	166	----	
2/2/55	16.2	12.4	11.3	1.45	1.21	154	NT	
3/2/55	12.8	9.1	8.6	1.14	0.89	158	NT	
3/29/55	15.0	11.3	8.0	1.34	1.11	199	----	
5/19/55	7.8	6.3	2.3	0.70	0.62	241	----	
Site 240, Madison Co., Tenn. Lintonia SiL/SiL (CL)								
7/15/54	2.0	5.7	10.4	0.20	0.59	300+	----	
8/11/54	4.4	10.4	13.3	0.43	1.07	300+	----	
9/14/54	5.2	9.7	14.1	0.51	1.00	300+	----	
12/14/54	19.2	20.8	18.3	1.89	2.15	255	----	
2/2/55	19.9	21.0	24.9	1.95	2.17	233	0.90	
3/2/55	18.8	20.9	24.2	1.85	2.16	235	0.94	
3/29/55	18.0	20.3	23.8	1.77	2.09	240	----	
5/19/55	5.8	12.6	17.5	0.57	1.30	300+	----	
Site 241, Madison Co., Tenn. Correl SiL/SiL (CL)								
7/15/54	1.8	6.1	13.7	0.16	0.59	300+	----	
8/11/54	2.2	6.4	13.8	0.20	0.61	300+	----	
9/14/54	1.8	6.5	14.8	0.16	0.62	300+	----	
12/13/54	19.7	21.8	20.3	1.78	2.09	300	----	
2/2/55	23.8	22.7	23.1	2.16	2.18	213	0.80	
3/2/55	22.0	22.9	23.9	1.99	2.20	263	0.62	
3/29/55	18.3	21.4	23.1	1.66	2.05	269	----	
5/19/55	13.8	20.0	23.6	1.25	1.92	300	----	
Plowed before 3/29/55								
Site 242, Haywood Co., Tenn. Grenada SiL/SiL (CL)								
7/15/54	4.9	8.8	12.5	0.40	0.78	300+	----	
8/11/54	4.3	9.0	12.8	0.35	0.80	300+	----	
9/14/54	7.7	8.1	12.6	0.63	0.72	300+	----	
12/14/54	26.6	22.4	13.4	2.17	1.99	254	----	
2/2/55	30.8	28.9	31.6	2.51	2.57	158	0.78	
3/2/55	30.3	27.3	27.3	2.47	2.42	148	0.60	
3/29/55	31.4	28.1	29.7	2.56	2.50	133	----	
5/20/55	26.5	25.5	27.6	2.16	2.26	184	----	
Site 243, Haywood Co., Tenn. Waverly SiL/SiL (ML)								
7/15/54	4.0	7.3	11.2	0.35	0.65	300+	----	
8/11/54	4.0	5.5	9.5	0.35	0.49	300+	----	
9/14/54	7.3	6.2	10.2	0.63	0.55	300+	----	
12/14/54	23.0	19.3	11.4	1.99	1.73	300+	----	
2/2/55	26.1	23.6	23.7	2.26	2.11	237	0.50	
3/2/55	House built on area							
3/29/55								
5/20/55								
Site 244, Fayette Co., Tenn. Memphis SiL/SiL (CL)								
7/15/54	6.6	9.5	16.8	0.55	0.78	300+	----	
8/11/54	13.7	14.4	13.4	1.13	1.18	300+	----	
9/14/54	4.8	9.5	14.0	0.40	0.78	300+	----	
12/14/54	21.5	17.6	17.6	1.78	1.45	277	----	
2/2/55	29.3	26.8	28.4	2.43	2.20	147	0.67	
3/2/55	24.9	25.5	23.1	2.06	2.10	151	0.72	
3/29/55	26.6	25.7	23.0	2.20	2.11	172	----	
5/20/55	20.1	20.3	25.6	1.66	1.71	215	----	
Site 245, Fayette Co., Tenn. Waverly SiL/SiL (ML)								
7/15/54	9.8	12.7	14.4	0.75	1.12	300+	----	
8/11/54	19.4	19.3	16.2	1.48	1.70	300+	----	
9/14/54	8.6	10.8	13.1	0.66	0.95	300+	----	
12/14/54	33.8	28.3	29.8	2.58	2.50	300+	----	
2/2/55	34.7	31.4	31.9	2.64	2.77	281	0.36	0
3/2/55	35.0	29.7	31.7	2.67	2.62	281	0.70	1
3/29/55	38.0	30.3	31.5	2.90	2.67	300	----	8
5/20/55	30.9	24.3	27.0	2.35	2.14	300	----	DRY
Site 246, Marshall Co., Miss. Calloway SiL/SiL (ML)								
7/16/54	14.3	6.4	4.4	1.29	0.54	300+	----	
8/11/54	9.8	11.4	14.0	0.88	0.96	300+	----	
9/14/54	3.9	8.6	12.9	0.35	0.73	300+	----	
12/14/54	26.2	25.7	27.8	2.36	2.26	191	----	
2/2/55	25.7	30.6	32.9	2.40	2.59	198	0.51	
3/2/55	26.9	29.8	32.2	2.42	2.52	190	0.59	
3/29/55	27.7	28.6	32.5	2.49	2.42	179	----	
5/20/55	21.8	21.7	27.5	1.96	1.94	267	----	
Hardpan, 3- to 6-in. depth								
Site 247, Marshall Co., Miss. Grenada SiL/SiL (CL)								
7/15/54	4.2	10.8	16.8	0.37	0.96	300+	----	
8/11/54	9.2	12.8	15.2	0.81	1.14	300+	----	
9/14/54	3.8	11.4	14.7	0.34	1.04	300+	----	
12/14/54	26.1	25.7	29.0	2.32	2.28	175	----	
2/2/55	29.7	30.9	34.3	2.64	2.74	155	0.68	
3/2/55	27.5	28.7	30.2	2.44	2.55	167	0.70	
3/29/55	31.1	26.3	29.7	2.76	2.34	186	----	
5/20/55	10.5	13.0	22.1	0.91	1.60	285	----	
Site 248, Marshall Co., Miss. Calloway SiL/SiL (ML)								
7/16/54	4.3	9.4	10.5	0.38	0.82	300+	----	
8/11/54	12.2	12.8	10.4	1.08	1.12	300+	----	
9/14/54	5.4	8.8	10.5	0.48	0.77	300+	----	
12/14/54	26.2	27.4	26.7	2.31	2.40	167	----	
2/2/55	26.7	30.7	30.8	2.35	2.69	166	0.71	
3/2/55	27.5	31.2	29.6	2.43	2.73	160	0.53	
3/29/55	24.6	27.1	28.4	2.17	2.37	169	----	
5/20/55	11.2	17.8	22.3	0.99	1.56	300	----	
Site 249, Marshall Co., Miss. Grenada SiL/SiL (CL)								
7/15/54	6.8	8.0	10.2	0.60	0.71	300+	----	
8/11/54	13.3	13.6	11.4	1.18	1.21	300+	----	
9/14/54	7.9	8.2	8.4	0.70	0.73	300+	----	
12/14/54	23.8	27.0	22.0	2.11	2.40	300+	----	
2/2/55	28.2	29.0	30.1	2.50	2.58	198	0.62	
3/2/55	25.1	25.8	25.6	2.23	2.39	257	0.48	
3/29/55	27.0	26.4	28.5	2.40	2.34	217	----	
5/20/55	13.1	19.6	19.0	1.16	1.74	300	----	

(Continued)

Note. NT = no test.

Table B3a (Continued)

Southern Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis, 0- to 6-in. Depth	Soil Moisture Content, Percent Weight Basis, 6- to 12-in. Depth	Soil Moisture Content, Percent Weight Basis, 12- to 18-in. Depth	Soil Moisture Content, in./6 in., 0- to 6-in. Depth	Soil Moisture Content, in./6 in., 6- to 12-in. Depth	Cone Index, 6- to 12-in. Depth	Remolding Index, 6- to 12-in. Depth	Depth to Water Table in.
Site 250, Panola Co., Miss. — Loring SiL/SiCL (ML)								
7/16/54	7.6	16.2	16.7	0.82	1.35	300+	----	
8/12/54	5.0	14.5	14.7	0.41	1.21	300+	----	
9/14/54	5.1	13.4	14.6	0.42	1.12	300+	----	
12/3/54	26.6	24.8	17.7	2.17	2.07	231	----	
2/3/55	25.8	26.3	26.8	2.11	2.19	198	0.68	
3/3/55	25.6	26.4	26.7	2.17	2.20	173	0.95	
3/30/55	24.3	24.4	26.6	1.98	2.03	177	----	
5/20/55	10.8	19.4	24.0	0.83	1.62	300	----	
Site 251, Panola Co., Miss. — Collins Si/Si (ML)								
7/16/54	13.1	14.6	25.7	1.01	1.17	300+	----	
8/12/54	5.9	6.8	14.7	0.46	0.55	300+	----	
9/14/54	3.8	3.9	7.3	0.29	0.31	300+	----	
12/3/54	21.4	19.4	19.8	1.66	1.56	300+	----	
2/3/55	24.5	23.8	31.3	1.90	1.91	293	NT	
3/3/55	28.4	26.6	34.1	2.20	2.14	263	NT	
3/30/55	31.4	29.1	33.3	2.43	2.34	272	----	
5/20/55	20.5	21.5	27.5	1.59	1.73	300	----	
Site 252, Panola Co., Miss. — Carroll SiL/SiL (CL)								
7/16/54	2.6	10.3	11.5	0.21	0.85	300+	----	
8/12/54	1.5	9.4	10.4	0.12	0.78	300+	----	
9/14/54	2.4	6.1	11.7	0.19	0.51	300+	----	
12/3/54	22.6	17.5	14.5	1.82	1.45	300+	----	
2/3/55	26.9	23.7	19.4	2.16	1.96	300+	0.86	
3/3/55	27.5	24.6	19.2	2.21	2.04	248	NT	
3/30/55	26.5	22.7	13.5	2.13	1.83	272	----	
5/20/55	5.2	11.8	13.8	0.42	0.96	300+	----	
Site 253, Panola Co., Miss. — Collins SiL/SiL (ML)								
7/16/54	9.1	10.8	12.2	0.81	0.98	300+	----	
8/12/54	8.2	10.8	12.6	0.73	0.98	300+	----	
9/14/54	5.2	6.4	7.0	0.46	0.58	300+	----	
12/3/54	25.5	24.9	22.0	2.26	2.26	300+	----	
2/3/55	27.4	25.5	25.8	2.43	2.31	300+	0.83	
3/3/55	25.7	27.5	28.0	2.28	2.49	257	0.36	
3/30/55	30.9	30.2	29.8	2.74	2.74	242	----	
5/20/55	22.7	23.4	24.4	2.02	2.12	290	----	
Site 254, Panola Co., Miss. — Memphis SiL/SiCL (CL)								
7/16/54	5.9	12.4	14.4	0.54	1.09	300+	----	
8/12/54	6.5	12.4	14.9	0.59	1.09	300+	----	
9/14/54	6.9	13.5	14.7	0.63	1.19	300+	----	
12/3/54	22.7	23.8	17.4	2.07	2.09	235	----	
2/3/55	23.3	28.0	29.1	2.12	2.45	277	NT	
3/3/55	21.1	26.0	26.4	1.92	2.28	251	NT	
3/30/55	20.3	27.0	28.2	1.85	2.37	244	----	
5/20/55	11.3	16.0	16.3	1.03	1.40	300+	----	
Site 255, Panola Co., Miss. — Olivier SiL/SiL (CL)								
7/16/54	5.3	7.5	11.8	0.45	0.65	300+	----	
8/12/54	3.6	7.4	9.1	0.31	0.64	300+	----	
9/14/54	5.4	6.7	7.6	0.46	0.58	300+	----	
12/3/54	22.8	23.8	20.0	1.96	2.06	226	----	
2/3/55	26.6	28.0	26.6	2.28	2.42	108	0.49	
3/3/55	26.7	27.4	25.8	2.29	2.37	145	0.58	
3/30/55	29.6	30.2	26.7	2.54	2.61	141	----	
5/20/55	11.9	17.8	20.7	1.02	1.54	300+	----	
Site 256, Panola Co., Miss. — Hymon SiL/SiL (ML)								
7/17/54	12.3	9.9	10.2	1.08	0.88	300+	----	
8/12/54	6.5	7.8	6.6	0.57	0.69	300+	----	
9/14/54	5.5	7.6	5.5	0.48	0.67	300+	----	
12/4/54	25.3	20.5	20.3	2.22	1.82	300	----	
2/3/55	28.4	22.2	19.7	2.49	1.97	209	NT	DRY
3/3/55	24.7	20.5	15.4	2.16	1.82	222	NT	DRY
3/30/55	29.2	26.9	24.4	2.56	2.39	138	----	28
5/20/55	13.4	15.6	14.6	1.17	1.39	236	----	DRY
Wood lot cleared, plowed and sowed in oats before 2/3/55.								
Flooded before 3/30/55								
Site 257, Quitman Co., Miss. — Dundee SiL/SiCL (CL)								
7/17/54	12.4	19.0	20.9	1.03	1.71	300+	----	
8/12/54	10.4	20.1	18.1	0.87	1.81	300+	----	
9/15/54	10.9	18.4	18.4	0.91	1.66	300+	----	
12/4/54	23.7	26.8	25.7	1.98	2.41	294	----	
2/3/55	25.2	29.5	28.7	2.10	2.66	300	NT	
3/3/55	21.6	28.1	28.5	1.80	2.53	241	NT	
3/30/55	26.4	30.3	29.5	2.20	2.73	250	----	
5/21/55	25.1	25.9	23.5	2.09	2.33	231	----	
Site 258, Quitman Co., Miss. — Forestdale SiL/SiCL (CL)								
7/17/54	7.6	18.4	18.6	0.67	1.69	300+	----	
8/12/54	9.8	20.1	20.0	0.86	1.85	300+	----	
9/15/54	4.8	11.4	17.0	0.42	1.05	300+	----	
12/4/54	23.3	26.0	25.1	2.06	2.39	293	----	
2/3/55	22.6	28.0	28.8	1.99	2.57	296	NT	
3/3/55	20.2	27.1	27.0	1.78	2.49	238	NT	
3/30/55	19.9	28.6	25.7	1.76	2.63	248	----	
5/21/55	18.6	27.2	28.8	1.64	2.50	224	----	
Site 259, Quitman Co., Miss. — Dowling C/C (MH)								
7/17/54	48.7	56.9	52.0	2.51	3.24	118	----	
8/12/54	37.2	45.3	44.0	1.92	2.58	137	----	
9/15/54	32.5	40.2	40.0	1.68	2.29	173	----	
12/4/54	43.1	51.2	54.5	2.22	2.92	154	----	
2/3/55	48.7	59.0	59.6	2.51	3.35	140	NT	
3/3/55	Flooded							
3/30/55	Flooded							
5/21/55	Flooded							
Site 260, Quitman Co., Miss. — Sharkey SiC/C (CH)								
7/17/54	18.2	25.4	25.0	1.49	2.04	300+	----	
8/12/54	19.6	23.8	25.6	1.60	1.91	300+	----	
9/15/54	15.4	22.3	23.0	1.26	1.79	300+	----	
12/4/54	33.1	38.4	40.3	2.70	3.09	221	----	
2/3/55	35.7	40.7	40.4	2.91	3.27	135	NT	
3/3/55	35.2	40.3	42.8	2.97	3.24	102	NT	
3/30/55	34.7	40.7	42.3	2.83	3.27	108	----	
5/21/55	30.0	33.6	35.8	2.45	2.70	91	----	
Site 261, Quitman Co., Miss. — Dundee SiL/CL (CL)								
7/17/54	7.8	16.3	14.9	0.72	1.50	300+	----	
8/12/54	9.7	17.0	15.0	0.90	1.56	300+	----	
9/15/54	9.6	12.9	15.8	0.89	1.18	300+	----	
12/4/54	26.1	28.6	26.4	2.41	2.63	300+	----	
2/3/55	23.8	28.2	26.6	2.20	2.59	300	NT	
3/3/55	24.6	27.6	26.0	2.27	2.53	223	NT	
3/30/55	22.0	26.6	27.2	2.03	2.44	270	----	
5/21/55	20.1	19.8	18.1	1.86	1.82	277	----	
Site 301, Washington Co., Ala. — Cuthbert SL/SCL (CL)								
5/21/54	4.3	8.3	15.8	0.40	0.80	300+	----	
8/3/54	12.2	18.6	17.4	1.13	1.80	237	----	
9/20/54	6.9	8.8	12.3	0.64	0.85	300	----	
11/9/54	12.2	21.1	15.9	1.13	2.04	300	----	
1/17/55	17.2	22.4	15.3	1.60	2.16	205	----	
2/7/55	19.5	19.1	19.0	1.82	1.85	161	0.36	
3/7/55	14.8	16.3	18.6	1.38	1.57	187	NT	
4/4/55	14.5	17.0	16.0	1.35	1.64	273	----	
5/16/55	8.2	13.7	17.1	0.76	1.32	300	----	
Site 302, Washington Co., Ala. — Rains SL/SL (ML)								
5/21/54	11.7	11.4	9.7	1.00	1.08	300+	----	
8/3/54	12.9	13.6	13.7	1.11	1.29	300	----	
9/20/54	7.5	6.6	5.9	0.64	0.63	300+	----	
11/9/54	17.0	15.9	15.2	1.46	1.51	237	----	
1/17/55	22.2	17.9	23.8	1.90	1.70	128	----	4
2/7/55	24.5	22.1	23.0	2.10	2.10	112	0.35	26
3/7/55	18.7	21.0	23.2	1.60	1.99	133	0.80	DRY
4/4/55	17.4	19.4	20.0	1.49	1.84	209	----	DRY
5/16/55	14.9	13.7	15.6	1.28	1.30	232	----	

(Continued)

Note: NT = no test.

Table B3a (Continued)

Southern Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, in./6 in.: 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 303, Washington Co., Ala. — Lynchburg SL/SL (ML)								
6/21/54	14.0	9.4	9.4	1.13	0.95	300	----	
8/3/54	17.1	11.7	13.8	1.37	1.20	300	----	
9/20/54	8.2	4.1	5.9	0.66	0.42	300+	----	
11/9/54	13.8	14.5	14.7	1.51	1.49	243	----	
1/17/55	30.1	25.1	26.0	2.42	2.58	98	----	12
2/7/55	32.1	22.3	23.0	2.58	2.29	100	0.53	DRY
3/7/55	22.4	16.9	18.7	1.80	1.73	169	0.60	DRY
4/4/55	22.0	15.7	16.2	1.77	1.61	204	----	DRY
5/16/55	13.6	9.9	14.1	1.09	1.02	300	----	
Site 304, Washington Co., Ala. — Tuka SIL/SICL (CL)								
6/22/54	17.4	20.5	25.2	1.46	1.82	300+	----	
8/3/54	19.3	20.9	25.8	1.62	1.86	300+	----	
9/21/54	11.3	12.1	15.8	0.95	1.07	300+	----	
11/9/54	22.3	22.0	23.3	1.87	1.35	300	----	
1/17/55	31.8	32.7	34.1	2.67	2.90	181	----	
2/7/55	32.9	28.6	31.8	2.76	2.54	172	0.88	
3/7/55	23.5	25.8	31.5	1.97	2.29	235	NT	
4/4/55	27.1	26.0	27.5	2.28	2.31	281	----	
5/16/55	23.1	17.1	19.9	1.20	1.52	300+	----	
Plowed 1/17/55								
Site 305, Clark Co., Ala. — Kershaw S/S (SM)								
6/22/54	4.7	3.8	4.4	0.38	0.35	143	----	
8/3/54	7.1	3.7	4.6	0.58	0.34	142	----	
9/21/54	3.1	1.3	1.6	0.25	0.12	199	----	
11/9/54	7.9	7.0	6.9	0.64	0.64	106	----	
1/17/55	11.0	9.0	9.2	0.90	0.83	106	----	
2/7/55	10.3	8.0	8.6	0.84	0.73	133	1.09*	
3/7/55	6.6	5.7	4.8	0.54	0.52	134	NT	
4/4/55	7.3	5.5	7.4	0.60	0.50	148	----	
5/16/55	2.8	0.7	0.6	0.23	0.06	183	----	
Site 306, Clark Co., Ala. — Greenville L/CL (CL)								
6/22/54	11.4	15.4	15.7	1.07	1.44	248	----	
8/3/54	13.7	17.3	18.6	1.29	1.62	252	----	
9/21/54	7.0	11.0	11.7	0.66	1.03	300+	----	
11/9/54	14.6	17.1	15.3	1.33	1.60	258	----	
1/17/55	18.1	19.7	21.4	1.71	1.34	179	----	
2/7/55	17.0	21.4	21.7	1.60	2.00	149	0.88	
3/7/55	9.8	14.9	16.7	0.92	1.39	284	NT	
4/4/55	10.6	13.0	15.0	1.00	1.22	300	----	
5/16/55	7.4	12.1	12.8	0.70	1.13	300+	----	
Site 307, Clark Co., Ala. — Magnolia LS/SL (SM)								
6/22/54	5.0	7.2	13.3	0.42	0.66	300+	----	
8/3/54	10.4	7.3	13.0	0.87	0.67	300	----	
9/21/54	1.5	2.7	9.8	0.13	0.25	300+	----	
11/9/54	7.6	11.7	17.2	0.63	1.07	300+	----	
1/17/55	15.2	18.2	20.0	1.27	1.66	178	----	
2/7/55	14.4	16.9	21.5	1.20	1.54	202	NT	
3/7/55	10.2	12.9	19.3	0.85	1.18	244	NT	
4/4/55	7.1	10.6	20.4	0.59	0.97	287	----	
5/16/55	7.5	9.7	15.1	0.63	0.88	300+	----	
Site 308, Clark Co., Ala. — Sawyer LS/LS (SM)								
6/22/54	17.5	6.9	4.6	1.43	0.63	194	----	
8/3/54	12.6	13.5	8.9	1.03	1.22	190	----	
9/21/54	4.3	2.8	1.3	0.35	0.25	256	----	
10/9/54	8.9	9.5	9.0	0.73	0.86	241	----	
1/17/55	16.2	15.1	16.4	1.38	1.37	118	----	
2/7/55	19.3	17.9	18.8	1.57	1.62	128	1.40*	
3/7/55	11.8	10.6	9.9	0.95	0.95	183	NT	
4/4/55	11.4	10.5	8.9	0.93	0.95	192	----	
5/16/55	10.9	6.8	7.4	0.89	0.62	236	----	
Site 309, Clark Co., Ala. — Orangeburg LS/SL (SM)								
6/22/54	5.1	4.3	9.4	0.48	0.45	228	----	
8/3/54	7.4	6.9	6.3	0.70	0.72	222	----	
9/21/54	2.7	3.6	6.4	0.25	0.37	300+	----	
11/10/54	5.5	4.2	6.0	0.52	0.44	249	----	
1/17/55	11.2	10.3	16.0	1.06	1.07	169	----	
2/7/55	10.7	11.5	16.0	1.01	1.19	150	NT	
3/7/55	6.6	6.3	12.2	0.62	0.65	215	NT	
4/4/55	4.7	5.7	11.1	0.44	0.59	215	----	
5/16/55	6.0	4.7	7.7	0.57	0.49	235	----	
Site 310, Monroe Co., Ala. — Cahaba LS/CL (SM)								
6/22/54	3.5	4.9	7.3	0.30	0.45	300+	----	
8/3/54	9.7	6.4	10.4	0.82	0.59	300+	----	
9/21/54	2.2	3.0	3.4	0.19	0.28	300+	----	
11/10/54	7.1	9.1	9.7	0.60	0.94	300+	----	
1/17/55	16.0	12.1	15.4	1.35	1.65	183	----	
2/7/55	14.6	16.2	13.1	1.24	1.49	138	NT	
3/7/55	5.8	11.3	10.9	0.74	1.04	256	NT	
4/4/55	10.6	11.9	12.8	0.90	1.09	295	----	
5/16/55	17.1	5.7	9.5	1.45	0.52	300	----	
Site 311, Monroe Co., Ala. — Ora SL/SCL (CL)								
6/22/54	4.4	3.0	9.2	0.44	0.85	300+	----	
8/3/54	10.9	10.5	11.4	1.08	0.99	300+	----	
9/21/54	3.0	6.1	9.7	0.32	0.57	300+	----	
11/10/54	8.7	10.9	10.2	0.86	1.03	284	----	
1/17/55	14.4	19.0	19.9	1.43	1.79	135	----	
2/7/55	14.9	16.6	20.1	1.48	1.56	113	1.11*	
3/7/55	7.7	12.6	14.6	0.76	1.19	203	NT	
4/4/55	9.9	13.9	16.1	0.98	1.31	211	----	
5/16/55	10.0	13.3	13.6	0.99	1.24	188	----	
Site 312, Conecuh Co., Ala. — Red Bay SL/SL (SC)								
6/22/54	4.5	7.6	8.5	0.40	0.62	300+	----	
8/3/54	7.6	11.8	13.5	0.63	0.95	300+	----	
9/21/54	7.1	8.1	8.4	0.64	0.56	300+	----	
11/10/54	9.2	9.1	8.7	0.83	0.74	283	----	
1/17/55	15.4	17.8	19.1	1.39	1.45	141	----	
2/7/55	15.7	18.2	16.8	1.41	1.49	133	0.90	
3/7/55	9.4	12.0	12.4	0.85	0.98	200	NT	
4/4/55	5.6	8.9	10.9	0.50	0.73	259	----	
5/16/55	9.2	9.1	10.9	0.83	0.74	300+	----	
Site 313, Conecuh Co., Ala. — Norfolk LS/LS (SM)								
6/23/54	3.8	3.1	2.7	0.34	0.32	300+	----	
8/4/54	6.6	5.0	3.0	0.59	0.51	300	----	
9/21/54	4.6	3.0	3.8	0.41	0.31	300+	----	
1/17/55	10.5	13.3	13.4	1.12	1.36	121	----	
2/7/55	15.7	14.1	13.5	1.40	1.45	143	NT	
3/7/55	12.5	11.4	11.4	1.12	1.17	149	NT	
4/4/55	12.2	9.6	9.7	1.09	0.98	208	----	
5/16/55	10.1	8.5	6.3	0.90	0.87	241	----	
Site 314, Conecuh Co., Ala. — Bibb SL/SL (SM)								
6/23/54	37.6	27.5	17.0	2.34	2.52	210	----	
8/4/54	39.9	21.4	17.4	3.02	1.96	272	----	
9/21/54	25.9	13.1	9.8	1.96	1.20	300	----	
11/10/54	34.5	22.6	14.2	2.61	2.07	300	----	
1/17/55	21.7	27.0	38.8	1.64	2.48	196	----	1
2/7/55	42.6	26.5	22.5	3.22	2.43	217	NT	0
3/7/55	47.6	22.6	25.7	3.22	2.07	300	NT	4
4/4/55	39.1	27.3	25.6	2.95	2.51	203	----	9
5/16/55	41.3	34.6	26.5	3.12	2.52	172	----	13
Probable flooding before 5/16/55								
Site 315, Coffee Co., Ala. — Orangeburg & Bustis S/LS (SM)								
6/23/54	4.8	4.2	4.1	0.43	0.41	143	----	
8/4/54	1.2	.7	2.1	0.11	0.07	300+	----	
9/21/54	1.1	0.9	1.9	0.10	0.09	300+	----	
1/18/55	10.6	9.9	10.4	0.94	0.96	135	----	
2/8/55	10.5	9.4	11.9	0.93	0.91	131	NT	
3/8/55	5.4	4.5	6.5	0.48	0.44	146	NT	
4/5/55	3.1	3.4	5.2	0.28	0.33	221	----	
5/17/55	8.5	6.9	4.7	0.75	0.66	132	----	
Site 316, Henry Co., Ala. — Norfolk SL/SL (SM)								
6/24/54	12.6	8.7	13.4	1.27	0.96	255	----	
8/4/54	8.3	7.5	12.7	0.84	0.83	300+	----	
9/21/54	3.4	2.4	0.7	0.34	0.26	300+	----	
1/19/55	14.8	8.7	17.1	1.49	1.40	238	----	
2/8/55	15.0	12.8	16.5	1.51	1.41	259	NT	
3/8/55	3.0	6.1	11.3	0.30	0.87	300+	NT	
4/5/55	5.7	5.7	9.3	0.53	0.63	300+	----	
5/17/55	10.3	5.6	7.9	1.04	0.62	300+	----	

(Continued)

Note: NT = no test.
* Vibrated remolding test.

Table B3a (Continued)

Southern Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in Depth	12- to 18-in. Depth	Soil Moisture Content, In./6 in.: 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 317, Henry Co., Ala. Norfolk FS/LS (SM)								
[illegible]	[illegible]	9.6	[illegible]	0.64	0.87	273	----	
[illegible]	2.3	[illegible]	5.2	0.27	0.58	300+	----	
9/21/54	[illegible]	1.7	[illegible]	0.24	0.17	300+	----	
1/19/55	10.1	9.0	10.7	0.97	0.92	275	----	
[illegible]	9.9	7.3	[illegible]	0.55	0.74	272	NT	
3/8/55	3.1	[illegible]	3.9	0.30	0.55	275	NT	
4/5/55	[illegible]	6.4	7.2	0.81	0.66	393	----	
5/17/55	[illegible]	[illegible]	[illegible]	0.73	0.50	300+	----	
Bars drilled, 18-in rows, 1/19/55								
Site 318, Henry Co., Ala. Ruston SL/SL (SM)								
6/24/54	11.2	10.1	9.5	0.98	1.04	130	----	
8/4/54	4.9	8.0	8.9	0.43	0.82	300+	----	
9/21/54	6.2	3.8	4.4	0.54	0.39	300+	----	
1/19/55	15.1	12.7	12.9	1.32	1.30	154	----	
2/3/55	12.8	11.1	12.1	1.05	1.14	177	NT	
3/8/55	6.7	7.0	9.1	0.59	0.72	225	NT	
4/5/55	9.9	8.4	7.7	0.87	0.86	250	----	
5/17/55	10.6	6.1	6.6	0.93	0.63	300+	----	
Site 319, Houston Co., Ala. Unclassified (SM)								
[illegible]	[illegible]	52.0	[illegible]	2.53	[illegible]	117	----	
8/4/54	33.0	40.0	41.0	1.93	[illegible]	159	----	
9/21/54	33.3	31.0	[illegible]	2.00	[illegible]	133	----	
[illegible]	[illegible]	56.0	[illegible]	[illegible]	[illegible]	98	----	
[illegible]	[illegible]	45.1	[illegible]	[illegible]	0.72	89	0.60	15
[illegible]	[illegible]	53.1	[illegible]	[illegible]	[illegible]	30	0.65	16
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	106	----	19
[illegible]	[illegible]	38.3	[illegible]	[illegible]	[illegible]	71	----	21
Site 320, Houston Co., Ala. Norfolk SL/SL (SM)								
6/24/54	5.3	8.1	8.2	0.50	0.85	271	----	
8/4/54	5.4	9.2	13.2	0.51	0.96	300+	----	
9/21/54	4.7	5.9	6.9	0.45	0.62	300+	----	
1/19/55	14.3	14.1	15.4	1.36	1.47	140	----	
2/6/55	13.3	13.9	16.5	1.31	1.45	168	NT	
3/8/55	6.5	10.2	12.5	0.62	1.06	224	NT	
4/5/55	11.4	11.9	10.9	1.08	1.24	223	----	
5/17/55	11.6	9.8	11.7	1.10	1.02	278	----	
Site 321, Jackson Co., Fla. Faceville LS/SCL (SM)								
[illegible]	[illegible]	3.8	15.9	[illegible]	0.89	283	----	
8/4/54	[illegible]	12.2	15.3	0.77	1.11	256	----	
9/22/54	[illegible]	10.8	[illegible]	0.82	0.98	302	----	
11/11/54	[illegible]	12.2	17.1	0.65	1.11	252	----	
[illegible]	[illegible]	13.2	20.0	1.30	1.66	127	----	
2/9/55	11.2	17.3	21.1	1.09	1.57	127	0.91	
3/8/55	[illegible]	12.4	19.1	0.46	1.12	198	NT	
4/5/55	[illegible]	15.0	17.9	0.80	1.36	192	----	
5/10/55	[illegible]	[illegible]	13.5	0.33	0.80	300+	----	
Site 322, Jackson Co., Fla. Grady SL/SL (SM)								
6/24/54	11.7	7.6	6.3	0.88	0.78	300	----	
8/4/54	14.5	10.4	7.9	1.10	1.07	300	----	
9/22/54	13.9	11.5	8.2	1.05	1.18	197	----	
1/19/55	16.4	15.3	15.7	1.24	1.57	141	----	
2/3/55	16.5	13.2	15.3	1.25	1.35	137	0.91	
3/8/55	13.8	9.4	9.9	1.04	0.96	278	NT	
4/5/55	13.8	12.2	11.2	1.04	1.25	208	----	
5/10/55	12.2	9.6	9.6	0.92	0.98	300+	----	
Site 323, Jackson Co., Fla. Tifton LS/LS (SM)								
6/24/54	12.8	11.7	11.2	1.01	1.15	124	----	
8/4/54	[illegible]	7.4	7.7	0.67	0.73	228	----	
9/22/54	4.9	3.4	3.8	0.39	0.33	257	----	
1/19/55	10.7	11.1	10.9	0.85	1.09	145	----	
2/8/55	11.1	12.0	11.1	0.89	1.24	133	NT	
3/8/55	8.0	5.8	7.3	0.64	0.54	197	NT	
4/5/55	9.0	8.4	8.9	0.72	0.83	211	----	
5/10/55	8.2	7.0	7.4	0.49	0.69	234	----	
Site 324, Gadsden Co., Fla. Congaree CL/CL (CL)								
6/24/54	30.0	23.1	29.4	2.32	2.13	177	----	
8/4/54	22.8	17.8	21.6	1.76	1.64	300	----	
9/22/54	14.7	14.4	18.5	1.14	1.33	330+	----	
1/19/55	32.3	25.4	29.4	2.50	2.35	241	----	
2/8/55	29.2	24.5	29.0	2.26	2.25	241	0.74	
3/8/55	27.0	20.4	25.8	2.09	1.88	277	NT	
4/5/55	24.2	21.9	27.5	1.37	2.02	272	----	
5/10/55	19.5	20.4	25.8	1.51	1.88	300+	----	
Site 325, Gadsden Co., Fla. Vancluse [illegible] (SM)								
[illegible]	10.6	[illegible]	14.2	0.39	0.96	[illegible]	----	
[illegible]	[illegible]	[illegible]	[illegible]	0.46	0.82	300	----	
[illegible]	[illegible]	4.7	14.0	0.31	0.27	300+	----	
1/19/55	[illegible]	11.2	14.1	0.73	1.13	159	----	
2/8/55	7.6	10.1	14.3	0.71	1.04	231	NT	
3/8/55	3.3	5.1	6.5	0.31	0.52	276	NT	
4/5/55	3.9	[illegible]	9.1	0.37	0.44	276	----	
5/10/55	3.9	4.1	9.1	0.37	0.42	300+	----	
Site 326, Gadsden Co., Fla. Earth LS/S (SM)								
6/25/54	13.0	9.2	7.8	1.22	0.87	250	----	
8/4/54	7.7	5.8	5.9	0.73	0.55	300	----	
[illegible]	[illegible]	2.7	2.2	[illegible]	0.44	0.21	300+	----
[illegible]	[illegible]	10.3	11.3	12.5	0.97	1.06	247	----
[illegible]	[illegible]	9.6	8.8	11.9	0.90	0.83	347	NT
[illegible]	[illegible]	5.2	7.4	[illegible]	0.55	0.66	300	NT
4/5/55	[illegible]	[illegible]	3.3	[illegible]	0.43	0.41	[illegible]	----
5/10/55	3.9	4.1	[illegible]	0.37	0.57	0.[illegible]	28[illegible]	----
Site 327, Gadsden Co., Fla. Red Bay LS/SL (SM)								
[illegible]	8.4	9.1	11.0	0.76	0.87	284	----	
[illegible]	[illegible]	[illegible]	10.8	0.55	0.80	300+	----	
9/22/54	[illegible]	4.2	7.4	0.50	0.40	300+	----	
11/11/54	7.8	[illegible]	9.0	0.70	0.61	300+	----	
1/19/55	15.2	12.9	16.7	1.37	1.24	120	----	
2/8/55	13.0	13.4	15.6	1.22	1.29	224	NT	
3/8/55	9.2	9.1	13.3	0.83	0.87	304	NT	
4/5/55	Not sampled - Site disturbed							
Site 328, Leon Co., Fla. Facyville SL/SCL (SM)								
6/25/54	13.8	16.7	[illegible]	1.24	1.45	300+	----	
8/5/54	[illegible]	18.4	23.9	1.01	1.60	274	----	
9/22/54	17.4	23.7	[illegible]	1.57	1.97	133	----	
1/19/55	19.0	26.[illegible]	30.2	1.71	2.30	154	----	
2/9/55	17.9	23.8	28.9	1.61	2.07	162	0.85	
3/9/55	[illegible]	13.5	23.5	1.03	1.61	275	NT	
4/5/55	17.7	20.0	21.7	1.59	1.74	227	----	
5/10/55	19.7	17.3	14.4	1.77	1.51	292	----	
Site 329, Leon Co., Fla. Ochlockonee SL/SCL (SM)								
[illegible]	[illegible]	12.9	11.3	1.49	1.12	300+	----	
[illegible]	10.3	11.1	11.2	0.93	0.97	300+	----	
9/22/54	[illegible]	14.7	13.6	1.45	1.26	201	----	
11/11/54	13.1	13.1	13.3	1.28	1.14	279	----	
1/19/55	19.8	19.9	19.1	1.79	1.73	171	----	
2/9/55	18.8	19.4	18.4	1.69	1.69	212	NT	
3/9/55	[illegible]	22.1	22.0	1.43	1.92	239	NT	
4/5/55	23.9	26.3	21.0	2.15	2.09	227	----	
5/10/55	17.0	18.8	24.6	1.53	1.64	300+	----	
Samples taken about 20 feet from plot on 3/9/55								
Site 330, Jefferson Co., Fla. Plummer LS/LS (SM)								
6/25/54	6.9	5.8	5.1	0.74	0.56	300	----	
8/5/54	[illegible]	4.6	4.1	0.51	0.44	300+	----	
9/23/54	10.6	9.5	6.4	0.68	0.91	230	----	
1/19/55	14.1	11.7	12.3	1.17	1.12	190	----	
2/9/55	14.1	10.3	[illegible]	1.17	0.99	195	NT	
3/9/55	11.1	[illegible]	[illegible]	0.92	0.78	204	NT	
4/5/55	[illegible]	[illegible]	[illegible]	0.80	0.89	219	----	
5/10/55	8.5	[illegible]	4.7	0.70	0.55	300+	----	

(Continued)

Note: NT = no test.

Table B3a (Continued)

Southern Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Cone Index, in./7 in.: 0- to 6-in. Depth	6- to 12-in. Depth	Remolding Index, 6- to 12-in. Depth	Depth to Water Table in.
Site 331, Jefferson Co., Fla. Lakeland S/S (SM)							
5/26/54	7.6	7.2	7.0	0.51	0.56	300+	----
8/5/54	1.6	1.5	4.7	0.14	0.14	300+	----
9/23/54	5.0	5.4	6.1	0.30	0.32	251	----
1/30/55	10.0	9.1	9.9	0.91	0.93	135	----
2/9/55	11.7	10.1	9.6	1.09	1.02	227	NT
3/3/55	7.4	8.4	8.5	0.35	0.30	271	NT
4/5/55	6.4	7.1	7.9	0.69	0.55	253	----
5/10/55	4.0	5.1	7.9	0.31	0.30	300+	----
Site 332, Jefferson Co., Fla. Leon S/S (SM)							
6/25/54	10.7	6.2	11.2	0.39	0.57	300+	----
8/5/54	3.4	3.0	7.6	0.20	0.24	300+	----
9/22/54	12.1	6.4	6.3	1.00	0.50	300+	----
1/29/55	12.0	11.6	11.8	0.99	1.46	300	----
2/9/55	14.2	10.3	13.4	1.18	0.99	300	NT
3/9/55	9.6	10.6	10.7	0.79	0.97	300	NT
4/5/55	7.0	7.7	7.4	0.58	0.72	294	----
5/10/55	5.7	5.2	5.0	0.47	0.48	300+	----
Site 333, Madison Co., Fla. Lakeland S/S (SM)							
6/25/54	5.5	5.8	5.2	0.45	0.54	251	----
8/6/54	3.0	3.3	3.5	0.21	0.21	300+	----
9/22/54	4.4	5.2	5.3	0.46	0.45	245	----
1/30/55	7.5	8.5	7.5	0.77	0.80	133	----
2/9/55	8.1	9.3	10.1	0.74	0.87	191	NT
3/9/55	10.5	10.0	9.1	0.94	0.98	300	NT
4/5/55	5.5	4.4	4.1	0.45	0.41	240	----
5/10/55	3.4	3.5	3.9	0.30	0.34	300+	----
Site 334, Madison Co., Fla. Jonesville LS/LS (SM)							
6/25/54	7.8	10.4	10.2	0.61	0.86	248	----
8/6/54	4.1	6.3	5.5	0.33	0.51	300	----
9/22/54	4.1	6.5	5.6	0.34	0.53	300	----
1/30/55	14.9	17.5	16.4	1.19	1.43	162	----
2/9/55	15.3	19.0	18.0	1.22	1.55	201	1.49
3/9/55	8.8	12.9	12.9	0.70	1.05	230	NT
4/5/55	7.3	9.9	11.6	0.70	0.81	210	---
5/10/55	Plowed						
Plowed before 1/30/55 and 4/5/55							
Site 335, Lowndes Co., Ga. Goldsboro LS/S (SM)							
5/24/54	4.1	6.0	9.6	0.43	0.60	257	----
8/4/54	2.1	3.8	7.2	0.25	0.37	300+	----
9/22/54	4.4	3.9	8.0	0.21	0.33	330+	----
1/30/55	9.3	10.1	13.5	0.65	0.99	134	----
2/9/55	9.1	11.0	14.0	0.81	1.09	177	NT
3/9/55	5.4	6.0	9.9	0.57	0.83	154	NT
4/5/55	4.4	6.0	9.7	0.39	0.61	249	----
5/11/55	3.9	4.7	11.2	0.52	0.65	264	----
Site 336, Lowndes Co., Ga. Rains SL/S (SM)							
6/26/54	10.9	9.2	10.1	1.56	0.33	300+	----
8/5/54	15.3	6.7	4.3	1.19	0.61	300+	----
9/22/54	15.6	4.9	4.5	1.17	0.44	300+	----
1/30/55	19.3	10.4	9.8	1.45	0.94	300+	----
2/9/55	20.6	9.3	11.7	1.54	0.80	300+	NT
3/9/55	21.7	8.6	8.9	1.63	0.78	300	NT
4/5/55	21.4	7.6	8.9	1.60	0.69	293	----
5/11/55	12.7	4.9	5.6	0.95	0.44	300+	----
Site 337, Berrien Co., Ga. Lynchburg LS/LS (SM)							
5/25/54	9.1	6.0	4.7	0.87	0.59	277	----
8/5/54	8.9	7.3	6.2	0.85	0.71	270	----
9/22/54	4.9	3.3	3.4	0.47	0.32	300+	----
1/30/55	11.8	10.0	9.5	1.13	0.98	236	----
2/9/55	12.9	10.2	10.6	1.16	1.00	204	NT
3/9/55	7.5	5.1	6.4	0.79	0.50	274	NT
4/7/55	6.1	5.3	4.9	0.79	0.52	277	----
5/11/55	4.9	5.8	7.2	0.47	0.57	300	----
Site 338, Berrien Co., Ga. Lynchburg LS/LS (SM)							
5/26/54	9.5	7.5	6.9	0.83	0.75	258	----
8/6/54	5.9	6.5	6.8	0.64	0.65	300+	----
9/22/54	7.4	4.7	3.1	0.69	0.47	292	----
1/30/55	10.6	9.8	10.5	0.99	0.93	235	----
2/9/55	11.3	10.6	12.0	1.05	1.06	213	NT
3/9/55	6.3	6.0	8.0	0.59	0.60	272	NT
4/7/55	6.5	5.8	6.2	0.60	0.38	275	----
5/12/55	5.0	6.5	7.0	0.45	0.65	290	----
Site 339, Tift Co., Ga. Izagora SL/SL (SM-SC)							
5/25/54	4.1	9.2	13.7	0.43	0.90	300+	----
8/5/54	5.4	8.0	10.8	0.56	0.88	300+	----
9/23/54	3.7	11.4	11.1	0.91	1.25	300+	----
1/30/55	20.7	13.5	16.4	2.16	1.48	300	----
2/9/55	24.3	22.9	24.6	2.16	1.77	300+	NT
3/9/55	15.1	15.7	15.5	1.58	1.72	300	NT
4/6/55	15.1	16.1	14.9	1.68	1.77	300+	----
5/11/55	11.4	12.9	16.0	1.19	1.42	300+	----
Site 340, Tift Co., Ga. Irvington LS/SL (SC)							
5/26/54	No data					300+	----
8/5/54	1.4	1.4	2.4	0.14	0.15	300+	----
9/23/54	5.7	7.1	9.2	0.57	0.65	300+	----
1/30/55	12.4	13.9	15.8	1.24	1.49	223	----
2/9/55	12.6	13.1	15.8	1.25	1.41	289	NT
3/9/55	5.0	5.1	6.7	0.50	0.55	300+	NT
4/6/55	3.5	5.8	10.8	0.35	0.53	300+	----
5/12/55	3.9	3.8	11.9	0.39	0.41	300+	----
Water in depressions on 1/30/55							
Site 341, Crisp Co., Ga. Tifton LS/SL (SM)							
5/24/54	2.8	5.2	6.6	0.22	0.54	300+	----
8/5/54	3.7	7.1	9.2	0.35	0.73	300+	----
9/23/54	4.2	6.7	9.0	0.22	0.69	300+	----
1/30/55	8.3	11.9	15.2	0.81	1.22	255	----
2/9/55	15.9	11.8	14.3	1.47	1.47	262	NT
3/9/55	8.1	8.1	10.5	0.30	0.84	300+	NT
4/6/55	3.8	9.3	13.1	0.37	0.96	300	----
5/11/55	2.7	7.6	10.9	0.26	0.78	300+	----
Site 342, Crisp Co., Ga. Grady L/SCL (SC-SM)							
6/27/54	12.6	9.1	7.8	0.92	0.93	300+	----
9/5/54	13.4	8.0	7.4	0.93	0.85	300+	----
9/23/54	15.7	6.5	6.3	1.12	0.70	300+	----
1/30/55	16.1	11.4	13.0	1.93	1.23	155	----
2/9/55	15.0	14.2	15.6	1.16	1.27	156	0.82
3/3/55	13.6	10.3	10.6	1.09	1.11	174	NT
4/7/55	12.6	9.2	8.3	1.36	0.99	293	----
5/11/55	13.3	12.1	12.8	0.97	1.31	300+	----
Area burned over before 2/9/55							
Site 343, Crisp Co., Ga. Lynchburg SL/SL (SM)							
6/27/54	4.9	5.1	8.2	0.46	0.54	300+	----
9/5/54	7.1	6.7	6.9	0.69	0.72	300+	----
9/23/54	3.8	3.0	9.6	0.84	0.85	300	----
1/30/55	15.0	13.2	14.4	1.44	1.41	164	----
2/9/55	13.1	14.1	15.8	1.26	1.51	171	NT
3/9/55	11.2	11.3	12.9	1.08	1.21	146	NT
4/6/55	10.5	11.5	13.0	1.01	1.24	211	----
5/11/55	5.5	8.3	10.8	0.93	0.89	300+	----
Site 344, Sumter Co., Ga. Greenville SL/SCL (SC)							
6/27/54	4.9	10.6	9.2	0.46	1.09	300+	----
8/5/54	6.3	10.4	10.5	0.59	1.07	300+	----
9/23/54	2.1	8.2	8.5	0.20	0.85	300+	----
1/30/55	12.4	15.8	16.7	1.16	1.63	195	----
2/9/55	13.9	17.7	17.1	1.30	1.83	187	0.90
3/9/55	5.3	12.5	13.4	0.54	1.29	300+	NT
4/6/55	10.7	11.7	10.8	1.00	1.21	290	----
5/11/55	1.9	9.7	11.3	0.18	1.00	300+	----

(Continued)

Note. NT = no test.

Table 83a (Continued)

Southern Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis, 0- to 6-in. Depth	Soil Moisture Content, Percent Weight Basis, 6- to 12-in. Depth	Soil Moisture Content, Percent Weight Basis, 12- to 18-in. Depth	Soil Moisture Content, in./ft in., 0- to 6-in. Depth	Soil Moisture Content, in./ft in., 6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 345, Sumter Co., Ga. Magnolia LS/SCL (SC)								
[illegible]	4.6	9.0	12.9	0.13	0.32	300+	----	
3/6/54	5.0	7.9	10.8	0.44	0.72	300+	----	
9/23/54	0.5	3.2	[illegible]	0.04	0.64	300+	----	
1/20/55	10.1	14.[illegible]	18.1	0.90	1.51	189	----	
2/10/55	12.7	15.3	20.2	1.15	1.58	197	NT	
3/9/55	8.9	10.4	15.0	0.26	1.07	236	NT	
4/[illegible]/55	9.0	11.7	23.5	0.71	1.21	236	----	
5/17/55	8.3	6.8	11.2	0.20	0.70	300+	----	
Site 346, Sumter Co., Ga. Henderson SL/SL (SC)								
6/28/54	5.6	8.4	14.4	0.53	0.83	300+	----	
9/5/54	9.6	7.8	13.2	0.90	0.77	300+	----	
9/23/54	2.2	7.7	10.8	0.21	0.76	300+	----	
1/20/55	18.7	24.1	21.6	1.76	2.37	225	----	
2/10/55	18.1	20.1	24.3	1.71	1.98	157	0.85	
3/9/55	12.2	15.7	19.9	1.15	1.64	300+	NT	
4/6/55	15.8	14.0	18.6	1.49	1.38	250	----	
5/11/55	6.8	15.6	21.0	0.64	1.54	300+	----	
Site 347, Quitman Co., Ga. Byars L/SCL (CL)								
6/23/54	24.0	17.1	15.6	1.39	1.63	300+	----	
9/6/54	22.3	19.2	21.3	1.75	1.33	300+	----	
9/23/54	11.4	9.1	9.6	0.90	0.87	300+	----	
1/21/55	27.3	23.7	20.9	2.15	2.26	223	----	
2/10/55			Flooded			237	----	
3/10/55	28.1	25.0	22.7	2.21	2.47	192	0.86	21
4/7/55	26.6	18.1	15.0	1.08	1.73	309	----	26
5/17/55	24.0	20.9	20.7	1.89	1.99	252	----	11
Site 348, Barbour Co., Ala. Lakeland LS/LS (SM)								
6/28/54	3.2	3.2	2.5	0.19	0.28	285	----	
9/6/54	5.2	5.8	5.7	0.44	0.59	183	----	
9/23/54	0.6	0.6	0.5	0.05	0.05	300+	----	
11/13/54	4.8	5.8	5.1	0.41	0.50	212	----	
1/21/55	9.6	10.4	9.1	0.51	0.90	119	----	
2/10/55	9.6	12.3	8.7	0.31	0.98	120	NT	
3/10/55	3.2	5.2	7.1	0.27	0.54	167	NT	
4/6/55	4.3	3.5	4.7	0.36	0.30	224	----	
5/17/55	7.4	3.0	3.2	0.63	0.17	218	----	
Site 349, Barbour Co., Ala. Ruston LS/LS (SM)								
6/28/54	6.1	4.3	13.6	0.43	0.42	300+	----	
9/6/54	8.2	10.2	14.7	0.76	0.95	303	----	
9/23/54	3.0	5.5	7.8	0.25	0.51	300	----	
1/21/55	15.9	19.2	22.5	1.35	1.80	140	----	
2/10/55	14.7	19.3	20.2	1.42	1.83	102	NT	
3/10/55	11.2	10.5	15.2	0.35	0.98	159	NT	
4/7/55	8.9	7.6	13.0	0.76	0.71	236	----	
5/17/55	3.3	4.3	9.5	0.70	0.40	255	----	
Site 350, Bullock Co., Ala. Cuthbert LS/SC (CL)								
6/28/54	7.2	25.3	22.7	0.69	1.93	296	----	
9/6/54	3.6	30.0	26.0	0.75	2.39	286	----	
9/23/54	7.2	35.5	21.5	0.63	1.94	300+	----	
1/21/55	21.7	36.8	34.0	1.89	2.80	152	----	
2/10/55	20.9	39.5	32.3	2.34	3.01	145	1.07	
3/10/55	19.3	34.1	30.1	1.82	2.60	158	NT	
4/6/55	9.8	24.4	31.6	0.77	1.36	213	----	
5/17/55	8.7	26.5	23.7	0.76	2.03	280	----	
Site 351, Bullock Co., Ala. Tantalie SL/SL (SC)								
6/28/54	4.1	9.[illegible]	11.4	0.32	0.34	300	----	
9/6/54	7.8	13.0	13.9	0.60	1.13	300+	----	
9/23/54	4.4	9.2	7.6	0.39	0.80	300+	----	
11/12/54	9.1	8.5	8.7	0.80	0.71	300+	----	
1/21/55	19.9	13.8	20.2	1.67	1.[illegible]	339	----	8.5
2/10/55	27.0	22.0	22.3	2.43	1.91	155	NT	DRY
3/10/55	19.2	19.1	21.9	1.06	1.56	192	NT	
4/6/55		Plowed and [illegible]ted						
5/17/55	8.9	8.3	11.4	0.73	0.68	300+	----	
Site 352, Bullock Co., Ala. Susquehanna SCL/C (CH)								
6/28/54	13.6	23.3	23.[illegible]	1.12	1.91	300+	----	
9/6/54	15.9	27.4	39.0	1.31	2.[illegible]	300+	----	
9/23/54	11.7	22.1	21.9	1.04	1.78	300+	----	
1/21/55	32.0	34.3	35.0	2.47	2.76	153	----	
2/10/55	30.3	35.8	36.1	2.63	2.86	155	1.00	
3/10/55	25.2	33.7	33.5	2.19	2.47	130	1.18	
4/6/55	24.2	31.4	30.2	1.79	2.52	205	----	
5/17/55	25.9	30.9	29.7	2.13	2.43	207	----	
Site 353, Bullock Co., Ala. Boswell LS/SCL (CL)								
6/23/54	8.4	15.7	21.6	0.22	1.28	300+	----	
9/5/54	6.2	15.7	22.9	0.44	1.22	300+	----	
9/23/54	19.7	21.9	21.3	1.37	1.79	300+	----	
1/22/55	27.8	34.3	37.3	2.05	2.72	251	----	
2/10/55	27.8	26.6	33.6	1.65	2.90	214	0.90	
3/10/55	20.5	28.1	32.7	1.30	2.32	371	NT	
4/7/55	23.9	30.5	27.9	1.69	2.49	263	----	
5/17/55	19.0	29.4	29.2	1.40	2.40	300	----	
Area burned over on 3/7/54								
Site 354, Bullock Co., Ala. Bibb S/S (SM)								
6/23/54	3.0	2.[illegible]	4.9	0.18	0.43	300+	----	
9/6/54	3.3	3.0	3.2	0.30	0.53	300+	----	
9/23/54	1.0	1.3	1.9	0.09	0.11	300+	----	
11/12/54	5.3	3.6	5.3	0.45	0.38	300+	----	
1/21/55	14.6	12.3	22.9	1.21	1.[illegible]	094	----	
2/10/55	14.1	21.3	22.5	2.15	1.92	247	NT	
3/10/55	17.0	17.4	13.8	1.52	1.53	192	NT	
4/8/55	13.6	13.2	18.0	1.22	1.13	300+	----	
5/17/55	8.2	9.7	20.0	0.73	0.50	300+	----	
Site 355, Dallas Co., Ala. Byars SL/SL (SM)								
6/23/54	4.5	3.0	1.9	0.40	0.27	300+	----	
9/7/54	4.0	2.4	2.6	0.45	0.22	300+	----	
9/24/54	3.2	1.0	1.0	0.29	0.09	300+	----	
11/21/54		Too wet to get sample				88	----	
2/10/55	31.1	25.2	27.3	2.80	2.57	96	Too fe	9
3/10/55	21.1	20.3	13.5	2.35	1.85	90	0.44	8
4/7/55	21.9	20.8	21.3	1.27	1.90	118	----	10
5/17/55	9.5	6.4	9.1	0.86	0.58	300+	----	DRY
Site 356, Dallas Co., Ala. Kipling SL/SL (SM)								
6/23/54	1.4	3.4	5.1	0.12	0.29	300+	----	
9/7/54	4.7	3.0	4.7	0.24	0.33	300+	----	
9/24/54	1.1	1.7	2.4	0.09	0.15	300+	----	
11/22/54	7.7	7.7	9.0	0.62	0.62	300+	----	
1/21/55	12.1	17.3	21.6	1.54	1.40	122	----	
2/10/55	16.9	18.5	19.7	1.44	1.59	140	0.83	
3/10/55	10.7	13.2	16.4	0.79	1.13	156	NT	
4/6/55	13.5	11.7	14.7	1.02	1.23	155	----	
5/17/55	4.9	7.7	13.3	0.42	0.66	201	----	
Site 357, Dallas Co., Ala. Geiger CL/CL (CL)								
6/23/54	18.7	19.6	20.4	1.64	1.60	300+	----	
9/7/54	17.0	20.5	21.0	1.49	1.76	300+	----	
9/24/54	13.1	15.6	16.7	1.15	1.34	300+	----	
11/22/54	17.2	17.4	18.7	1.56	1.51	300+	----	
1/22/55	31.5	31.0	30.8	2.76	2.46	133	----	12
2/10/55	31.1	30.3	31.5	2.72	2.45	149	1.55	13
3/10/55	35.4	27.0	36.7	2.23	[illegible]	144	1.26	20
4/7/55	31.6	27.3	29.[illegible]	2.15	2.34	170	----	13
5/17/55	17.0	22.[illegible]	22.1	1.55	[illegible]	300+	----	DRY
Area flooded before 2/10/55								
Site 358, Dallas Co., Ala. Atoka CL/CL (CL)								
6/23/54	[illegible]	8.5	4.0	0.55	0.35	300+	----	
9/7/54	5.7	[illegible]	3.1	0.54	0.35	300+	----	
9/24/54	[illegible]	1.6	3.3	0.22	0.26	300+	----	
11/22/54	[illegible]	11.1	16.0	1.36	1.42	300	----	
1/22/55	23.9	29.5	29.[illegible]	2.26	1.97	133	1.55	13
2/10/55	22.2	27.1	17.0	2.09	1.72	172	1.26	20
3/10/55	15.4	30.4	29.[illegible]	2.29	1.97	168	----	13
4/7/55	20.3	24.[illegible]	1[illegible]	2.10	1.43	207	----	DRY
5/17/55	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	----	

(Continued)

Note NT = no test.

Table B3a (Concluded)

Southern Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis, 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Cone Index, 0- to 6-in. Depth	Cone Index, 6- to 12-in. Depth	Remolding Index, 0- to 12-in. Depth	Depth to Water Table in.
Site 359, Dallas Co., Ala. Sumter SiCl/SiCL (CH)							
5/29/54	14.4	17.0	18.6	1.18	1.53	300+	----
8/5/54	14.8	17.5	17.5	1.21	1.53	300+	----
9/24/54	11.0	14.1	16.3	0.90	1.27	300+	----
1/22/55	32.0	30.2	29.0	2.61	2.72	210	----
2/11/55	26.9	27.4	27.1	2.20	2.47	266	0.96
3/11/55	21.5	24.5	25.7	1.75	2.20	291	NT
4/6/55	23.2	25.3	25.2	1.89	2.32	263	----
5/13/55	20.4	18.5	21.0	1.66	1.66	300+	----
Site 360, Dallas Co., Ala. Catalpa SiL/SiCL (CH)							
6/29/54	19.7	26.4	29.7	1.62	2.00	300+	----
8/6/54	14.9	21.4	29.0	1.64	2.10	248	----
9/24/54	15.8	23.9	26.8	1.38	1.84	300+	----
1/22/55	33.1	35.6	38.2	2.72	2.73	130	----
2/11/55	30.5	35.3	41.8	2.51	2.75	155	0.96
3/11/55	28.9	35.7	38.3	2.30	2.72	153	1.15
4/6/55	30.1	33.0	38.9	2.47	2.53	163	----
5/13/55	23.6	25.1	30.9	1.94	1.93	251	----
Site 361, Marengo Co., Ala. Sumter SiCl/SiC (CH)							
6/29/54	12.6	15.6	16.7	1.07	1.37	300+	----
8/6/54	22.3	21.6	20.0	1.89	1.38	300+	----
9/24/54	12.0	14.7	17.4	1.02	1.48	300+	----
1/22/55	29.8	30.0	28.7	2.54	2.80	221	----
2/11/55	29.2	32.2	29.0	2.49	2.82	240	1.03
3/11/55	24.0	25.9	25.1	2.04	2.27	243	NT
4/6/55	22.8	25.6	22.7	1.94	2.04	235	----
5/13/55	17.9	19.8	20.1	1.53	1.45	300+	----
Site 362, Marengo Co., Ala. Sumter SiL/SiCL (CH)							
6/30/54	17.9	23.8	18.3	1.25	1.97	300+	----
8/6/54	23.4	31.0	25.7	1.97	2.57	240	----
9/24/54	15.0	21.7	21.4	1.26	1.80	300+	----
1/22/55	30.8	32.1	32.6	2.59	2.74	183	----
2/11/55	31.6	35.0	31.9	2.65	2.92	197	1.00
3/11/55	22.8	29.3	30.7	1.92	2.47	235	NT
4/7/55	29.0	30.3	31.1	2.44	2.67	170	----
5/13/55	20.1	24.4	25.9	1.69	2.02	300+	----
Site 364, Marengo Co., Ala. Sutaw CL/CL (CL)							
7/30/54	12.0	15.3	17.4	1.01	1.36	300+	----
8/6/54	13.0	18.6	18.5	1.17	1.62	300+	----
9/24/54	12.3	16.7	17.2	1.03	1.48	300+	----
1/23/55	30.3	29.2	30.6	2.55	2.69	198	----
2/11/55	30.7	29.7	30.0	2.58	2.64	160	1.00
3/11/55	26.3	27.0	28.0	2.21	2.42	178	1.27
4/7/55	33.2	29.5	31.1	2.75	2.62	144	----
5/18/55	36.1	34.0	27.1	2.19	2.13	224	----
Site 365, Sumter Co., Ala. Huckabee LS/LS (SM)							
6/30/54	4.9	5.5	5.4	0.44	0.51	300+	----
8/6/54	5.3	5.3	4.2	0.47	0.50	300+	----
9/24/54	2.7	2.6	3.6	0.24	0.24	300+	----
1/22/55	15.7	14.2	14.8	1.39	1.33	202	----
2/11/55	14.3	13.0	15.8	1.27	1.52	195	NT 35
3/11/55	8.9	12.2	14.4	0.79	1.24	192	NT 35
4/7/55	11.8	12.3	13.7	1.05	1.20	173	---- 30
5/18/55	6.4	9.9	11.4	0.57	0.93	224	---- DRY
Water in depressions on 4/7/55							
Site 366, Sumter Co., Ala. Kipps SiCl/SiCL (CH)							
6/30/54	13.4	16.6	18.6	1.17	1.48	300+	----
8/6/54	13.6	18.2	17.4	1.19	1.61	300+	----
9/24/54	11.6	15.9	16.6	1.02	1.48	300+	----
1/22/55	28.2	27.3	27.4	2.47	2.46	155	----
2/11/55	26.3	29.0	28.5	2.30	2.55	146	0.97
3/11/55	23.0	25.5	26.1	2.01	2.23	197	1.20
4/7/55	27.3	28.5	29.2	2.29	2.66	110	----
5/13/55	20.7	21.7	24.1	1.81	2.21	187	----
Site 367, Sumter Co., Ala. Okla SL/SL (CL)							
6/30/54	2.6	3.9	5.4	0.24	0.38	300+	----
8/6/54	4.8	5.0	7.7	0.45	0.49	300	----
9/24/54	1.9	3.5	3.9	0.18	0.34	300+	----
1/22/55	16.4	17.4	16.1	1.54	1.69	113	----
2/11/55	20.9	20.9	20.1	1.96	2.03	95	1.26
3/11/55	15.8	16.4	15.8	1.48	1.59	167	1.20
4/7/55	21.4	20.7	17.2	2.00	2.01	85	----
5/18/55	12.9	12.6	13.0	1.21	1.22	223	----
Some timber cut before 9/24/54							
Site 368, Sumter Co., Ala. Bibb SiL/L (CL)							
7/30/54	13.9	13.7	13.7	1.11	1.20	300+	----
8/6/54	11.0	11.7	12.8	1.05	1.05	300+	----
9/24/54	10.4	8.7	11.8	0.84	0.78	300+	----
1/22/55	24.1	20.1	17.5	2.04	2.47	87	----
2/11/55	21.3	20.2	25.4	2.37	2.72	53	---- 0
3/11/55	17.9	20.3	22.3	2.21	2.70	45	0.50 1
4/7/55	22.0	20.4	27.0	3.37	2.65	50	---- 1
5/13/55	29.0	21.7	20.1	2.33	1.95	1.9	--- DRY
Site 369, Sumter Co., Ala. Cuthbert SL/SCL (CL)							
6/30/54	8.3	12.7	14.9	0.75	1.25	300+	----
8/5/54	6.8	12.2	16.8	0.62	1.20	300+	----
9/24/54	4.2	7.9	10.4	0.38	0.73	300+	----
1/22/55	20.8	23.7	23.5	1.88	2.33	166	----
2/11/55	21.9	23.9	23.9	1.98	2.35	194	0.96
3/11/55	15.4	19.1	22.6	1.40	1.88	235	1.00
4/7/55	18.3	22.2	24.6	1.70	2.18	183	----
5/13/55	7.1	15.9	19.4	0.64	1.56	300+	----

Note: T = no test.

Table [illegible]

Soil Moisture Content and Strength Data of Survey Sites

Northeastern Region

Sample Date	Soil Moisture Content, Percent Weight Basis, 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, In./6 In., 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index 0- to 12-in. Depth	Remolding Index 0- to 12-in. Depth	Depth to Water Table in.
Site 1, [illegible] Co., Pa. [illegible] SiL (ML)								
6/28/54	21.7	23.3	22.6	1.37	2.24	230	----	
7/27/54	18.7	23.1	22.1	1.35	2.22	251	0.87	
8/24/54	20.1	20.3	21.2	1.72	1.98	203	----	
9/28/54	17.9	8.4	21.4	2.40	2.53	137	----	
12/17/54	21.6	1.4	20.6	1.96	2.03	141	----	
4/1/55	24.9	[illegible]	22.3	2.11	2.38	133	0.85	
4/28/55	22.1	[illegible]	24.2	1.90	2.32	205	----	
6/1/55	24.2	.3	23.1	1.80	2.24	154	----	
Site 3, Luzerne Co., Pa. Lackawanna Sil/SiL (ML)								
6/28/54	15.9	14.5	16.0	1.17	1.32	300	----	
7/27/54	10.9	11.4	13.7	0.90	1.04	300	----	
8/24/54	14.7	11.7	16.3	1.07	1.34	300	----	
9/28/54	21.1	15.1	20.7	2.05	2.24	201	----	
12/17/54	27.8	24.8	21.9	2.03	2.26	157	NT†	
4/1/55	30.0	23.1	22.4	2.23	2.15	209	0.47†	
4/28/55	33.6	25.7	21.9	2.45	[illegible]	192	0.47	
6/1/55	22.3	17.6	17.9	1.63	1.80	269	----	
Site 5, Luzerne Co., Pa. Papakating Muck (Pt)								
6/28/54	110.3	133.8	174.2	4.07	4.28	52	----	
7/27/54	98.5	94.4	103.0	3.35	3.02	51	0.76	
8/24/54	148.3	96.0	123.2	5.04	3.07	52	----	
9/28/54	140.3	152.4	215.7	4.77	4.87	59	----	
12/17/54	136.3	103.3	157.6	6.30	3.31	55	----	
4/1/55	170.8	108.9	136.9	5.81	4.48	88	0.49	
4/28/55	220.9	152.4	21[illegible].7	7.51	4.82	43	----	
6/1/55	190.2	93.0	148.7	6.47	2.98	48	----	
Bulk density and moisture content values questionable								
Site 7, Wyoming Co., Pa. Tioga SiL/SiL (SM)								
6/29/54	10.3	7.0	7.2	0.72	0.59	276	----	
7/27/54	7.1	[illegible].7	4.7	0.50	0.48	284	----	
8/25/54	15.3	7.3	5.3	1.07	0.62	277	----	
9/30/54	8.6	4.8	3.9	0.60	0.41	237	----	
1/4/55	21.7	16.7	12.8	1.52	1.42	148	NT	
4/1/55	24.3	16.2	14.6	1.70	1.38	185	1.57*†	
4/28/55	24.1	13.2	14.0	1.69	1.12	174	----	
6/1/55	22.3	11.4	10.5	1.56	0.97	167	----	
Site 9, Wyoming Co., Pa. Tioga SiL/SiL (SM)								
6/29/54	21.7	15.7	21.2	1.90	1.38	179	----	
7/27/54	11.1	12.5	17.1	1.42	1.10	238	----	
8/25/54	9.8	7.5	[illegible].4	0.81	0.66	279	----	
9/30/54	18.5	8.0	[illegible].5	1.54	0.70	248	----	
12/17/54	27.2	16.0	16.7	2.09	1.41	Rock	NT**	
1/4/55	27.[illegible]	16.7	13.8	2.27	1.47	149	NT	
4/1/55	23.3	15.[illegible]	16.8	1.93	1.35	Rock	1.54†	
4/28/55	23.8	18.6	16.[illegible]	1.98	1.64	147	----	
6/1/55	20.7	15.0	11.8	1.72	1.32	112	----	
Site 10, Centre Co., Pa. Huntington L/L (ML)								
7/6/54	26.3	18.7	14.2	2.03	1.62	283	----	
8/2/54	12.7	9.9	9.9	0.98	0.87	300	----	
9/17/54	38.0	19.9	12.8	2.16	1.76	282	----	
9/13/54	20.9	14.3	4.8	1.61	1.27	300+	----	
11/8/54	30.8	25.5	18.7	2.37	2.27	195	0.[illegible]	
3/14/55	31.5	23.9	18.2	2.42	2.13	195	0.76†	
4/29/55	29.9	21.9	17.3	2.30	1.96	180	----	
5/16/55	25.[illegible]	15.9	15.2	1.16	1.40	300	----	
Site 11, Centre Co., Pa. Hagerstown Si[illegible] (CL)								
7/6/54	19.4	18.9	20.4	1.47	1.72	[illegible]	----	
[illegible]/2/54	13.3	12.7	14.5	1.06	1.23	[illegible]	----	
[illegible]/17/54	23.[illegible]	15.8	16.5	1.[illegible]	1.53	300	----	
9/13/54	14.9	10.1	13.4	1.19	1.56	[illegible]00	----	
11/8/54	29.0	21.0	20.[illegible]	2.[illegible]	2.0[illegible]	177	0.74†	
3/14/55	[illegible].8	22.9	22.6	[illegible].55	2.07	185	----	
4/[illegible]/55	29.6	22.6	21.1	2.35	2.19	134	----	
5/16/55	27.[illegible]	[illegible].9	23.0	2.[illegible]	2.02	221	NT†	
Site 13, Centre Co., Pa. [illegible] Fine Sd/SiL/SiL (SM)								
7/6/54	12.4	10.1	7.9	1.02	1.02	283	----	
8/2/54	6.4	5.4	3.6	0.[illegible]	0.55	350	----	
9/17/54	14.9	10.2	10.5	0.[illegible]	1.03	300	NT	
9/13/54	7.5	7.5	[illegible].[illegible]	0.61	0.[illegible]	300	----	
11/8/54	12.8	11.[illegible]	10.3	1.05	1.20	162	----	
3/[illegible]/55	14.3	13.6	11.[illegible]	1.17	1.37	[illegible]	----	
4/18/55	15.3	13.5	17.2	1.25	1.3[illegible]	112	1.52*	
5/16/55	11.5	11.3	12.7	0.94	1.14	224	----	
Site 2, Luzerne Co., Pa. Tioga SiL/SiL (ML)								
6/28/54	18.5	25.7	18.3	1.03	1.75	144	----	
7/27/54	17.0	20.0	15.7	1.00	1.36	139	3.09	
8/24/54	17.9	27.1	18.7	1.06	1.84	171	----	
9/28/54	27.2	28.6	23.5	1.60	1.94	135	----	
12/17/54	22.2	24.7	18.3	1.31	1.68	113	----	
4/1/55	20.9	27.9	20.9	1.23	1.90	131	1.38*	
4/28/55	24.3	27.3	20.6	1.43	1.86	150	----	
6/1/55	20.9	22.0	17.3	1.23	1.50	108	----	
Site 4, Luzerne Co., Pa. Canfield C/C (ML)								
6/28/54	32.4	23.8	21.8	1.81	2.00	220	----	
7/27/54	22.6	14.4	13.8	0.71	1.27	300	----	
8/24/54	20.5	13.2	11.8	1.15	1.16	300	NT**	
9/28/54	46.2	20.1	25.5	2.59	2.65	200	----	
12/17/54	40.0	36.9	26.7	2.24	3.23	96	NT**	
4/1/55	32.4	30.4	28.7	2.93	2.68	212	NT**	
4/28/55	48.3	31.4	27.4	2.70	2.76	163	NT**	
6/1/55	47.1	32.7	30.1	2.64	2.68	97	----	
Site 6, Luzerne Co., Pa. Woostern SiL/SiL (ML)								
6/28/54	13.5	14.4	15.5	0.92	1.08	300	----	
7/27/54	8.1	7.5	9.1	0.55	0.56	300	----	
8/24/54	10.4	8.9	Rock	0.71	0.66	300	NT*	
9/28/54	26.5	22.3	26.6	1.80	1.67	268	----	
12/17/54	28.6	25.0	18.2	1.94	1.85	173	NT**	
4/1/55	29.4	28.7	25.8	2.00	2.12	212	NT**	
4/28/55	30.5	27.9	27.4	2.07	2.06	215	----	
6/1/55	31.9	28.1	24.5	2.17	2.08	198	----	
Site 8, Wyoming Co., Pa. Holly L/SiL (ML)								
6/29/54	34.5	25.6	21.1	2.65	2.36	267	----	
7/27/54	31.1	24.6	10.0	2.39	2.25	300	----	
8/25/54	35.4	27.3	20.1	2.72	2.51	231	----	
9/30/54	30.5	22.0	17.3	2.34	2.02	290	----	
1/4/55	39.4	30.9	21.0	3.03	2.84	237	0.82†	
4/1/55	40.7	29.3	21.4	3.13	2.70	235	0.56†	
4/28/55	26.3	27.4	20.3	2.02	2.52	249	----	
6/1/55	36.2	23.7	20.8	2.78	2.18	229	----	
Site 12, Centre Co., Pa. [illegible]bleorchard SiL/SiL (SM)								
7/6/54	14.3	11.1	12.3	1.34	1.38	279	----	
[illegible]/2/54	8.8	10.1	9.1	0.83	1.02	300	----	
9/17/54	11.[illegible]	11.4	12.9	1.18	1.25	238	NT	
9/13/54	11.0	10.7	11.[illegible]	1.00	1.00	278	----	
11/8/54	14.4	14.[illegible]	12.[illegible]	1.54	1.49	203	----	
3/14/55	15.[illegible]	17.[illegible]	14.3	1.54	1.54	203	----	
4/18/55	15.[illegible]	14.0	16.6	1.[illegible]	1.62	173	1.16*	
5/16/55	7.3	9.5	[illegible].6	0.59	0.96	220	----	
Site 14, Centre Co., Pa. Whitebirch Gravelly L (ML)								
7/6/54	25.8	20.3	16.5	2.06	1.[illegible]	259	----	
8/2/54	14.5	12.4	12.3	1.16	0.92	300	----	
9/17/54	22.5	14.6	15.0	1.30	1.08	300	----	
9/13/54	16.0	11.8	12.7	1.14	0.87	300	----	
11/8/54	24.1	13.8	20.5	1.93	1.02	284	NT	
3/14/55	33.6	31.9	28.1	2.39	[illegible].39	202	0.61†	
4/18/55	27.0	26.0	26.6	2.16	[illegible].[illegible]	304	NT	
5/16/55	17.8	18.9	21.3	1.42	1.46	288	NT†	

(Continued)

Note: NT = no test.
* Vibrated remolding test. ** Penetrometer stopped by stones. † Measurement of 0- to 6-in. layer.

Table B[illegible] (Continued)

Northeastern Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Bulk Density, gm/cc: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Core Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site [illegible], [illegible] Co., [illegible]. [illegible] L (CL)									
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	300	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	300	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	300	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	300	----	
11/8/54	31.5	24.1	[illegible]	[illegible]	[illegible]	[illegible]	167	0.30	
3/14/55	36.2	37.8	24.3	2.67	[illegible]	[illegible]	191	0.45†	
4/19/55	34.0	37.2	[illegible]	[illegible]	[illegible]	2.58	167	0.51†	
[illegible]/55	17.5	20.0	[illegible]	[illegible]	1.85	1.90	300	NT†	
Site 17, Huntingdon Co., Pa. [illegible] L/L (ML)									
7/6/54	29.9	31.7	35.4	[illegible]	[illegible]	[illegible]	116	----	
8/3/54	15.1	15.9	[illegible]	1.24	1.30	300	----		
8/17/54	36.9	[illegible]	37.5	2.71	[illegible]	[illegible]	[illegible]	----	
9/13/54	24.6	24.0	[illegible]	[illegible]	1.97	286	----		
11/9/54	31.7	34.6	[illegible]	[illegible]	[illegible]	[illegible]	160	0.70†	
3/14/55	30.8	[illegible]	40.0	[illegible]	2.54	2.84	143	0.54†	
4/19/55	30.4	35.1	----	[illegible]	[illegible]	[illegible]	149	----	
5/16/55	22.4	21.9	20.8	1.84	1.79	300	NT†		
Site 19, Bedford Co., Pa. Elkins L/SL (SM)									
7/7/54	25.4	31.0	38.1	1.78	[illegible]	[illegible]	135	----	
8/2/54	30.8	35.0	43.6	[illegible]	[illegible]	[illegible]	174	----	
8/17/54	31.1	34.3	[illegible]	[illegible]	[illegible]	[illegible]	141	----	
9/13/54	23.5	38.0	39.0	1.83	[illegible]	[illegible]	131	----	
11/9/54	34.2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	115	0.58	
3/14/55	33.3	38.5	40.2	[illegible]	[illegible]	[illegible]	174	----	
4/19/55	[illegible]	[illegible]	39.5	[illegible]	[illegible]	[illegible]	136	[illegible]	18
[illegible]/55	30.0	[illegible]	39.4	[illegible]	[illegible]	[illegible]	203	----	24
Site 21, Blair Co., Pa. Guthrie SiL/SiL (CL)									
[illegible]	31.9	[illegible]	21.9	[illegible]	[illegible]	[illegible]	243	----	
[illegible]/54	31.0	21.7	19.7	[illegible]	[illegible]	[illegible]	255	----	
8/18/54	[illegible]	[illegible]	19.6	[illegible]	[illegible]	[illegible]	261	----	
9/14/54	[illegible]	19.7	17.0	[illegible]	[illegible]	[illegible]	300	----	
11/9/54	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	170	0.81	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	121	0.58	18
[illegible]/55	35.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	102	0.67	
[illegible]/55	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	----	DRY
Site [illegible], Blair Co., Pa. Duffield SiL/SiL (CL)									
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	300	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	300	----	
8/18/54	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	300+	----	
9/14/54	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	300+	----	
11/9/54	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	276	NT	
3/14/55	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	236	NT	
4/19/55	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	----	
5/16/55	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	300	NT	
Site 25, Indiana Co., Pa. Ernest L/L (CL)									
7/8/54	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	147	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	300	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	175	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	300	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	139	0.60	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	178	----	
[illegible]	[illegible]	23.7	[illegible]	[illegible]	[illegible]	[illegible]	151	[illegible]	
[illegible]	[illegible]	22.9	[illegible]	[illegible]	[illegible]	[illegible]	300	----	
Site 27, Indiana Co., Pa. Gilpin SiL/SiL (CL)									
7/8/54	25.7	23.0	21.5	2.22	2.05	215	----		
8/3/54	26.4	22.9	22.5	2.27	2.04	264	----		
8/18/54	24.7	23.6	21.3	2.12	2.10	175	----		
9/14/54	21.6	19.9	19.3	1.86	1.76	280	----		
11/10/54	24.1	23.3	20.6	2.07	2.06	231	NT**		
3/15/55	26.5	27.0	25.5	2.28	2.40	255	NT**		
4/19/55	36.0	28.8	26.7	3.10	2.56	130	NT**		
5/16/55	23.9	23.1	20.2	1.97	2.06	300	----		
Site 7, Huntingdon Co., Pa. [illegible] L/L (ML)									
7/6/54	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	----	
Site 18, Bedford Co., Pa. Elkins SiL/SiL (CL)									
7/7/54	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	----	
Site 20, Bedford Co., Pa. Atkins L/L (CL-ML)									
7/7/54	18.5	17.0	18.1	1.54	1.70	300	----		
8/2/54	19.7	11.5	11.4	1.84	1.15	300	----		
8/17/54	20.0	17.3	18.7	1.66	1.73	300	----		
9/13/54	14.6	9.9	12.5	1.21	0.99	300	----		
11/9/54	31.1	17.9	20.0	2.58	1.79	244	NT		
3/14/55	27.7	21.2	24.8	2.30	2.12	238	----		
4/19/55	28.6	20.4	[illegible]	2.37	2.04	201	NT		
5/16/55	16.0	15.3	23.7	1.33	[illegible]	[illegible]	300	----	
Site 22, Blair Co., Pa. Duffield SiL/SiCL (CL)									
7/7/54	18.8	19.7	[illegible]	1.43	1.65	300	----		
8/3/54	20.1	19.4	[illegible]	1.53	1.63	300	----		
8/18/54	16.7	[illegible]	[illegible]	1.27	1.58	300	----		
9/14/54	16.0	16.7	[illegible]	1.22	1.40	300	----		
11/9/54	[illegible]	[illegible]	[illegible]	1.34	2.10	300	NT		
3/14/55	[illegible]	[illegible]	[illegible]	2.44	[illegible]	[illegible]	266	NT	
4/19/55	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	273	NT	
5/16/55	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	300	NT	
Site 24, Indiana Co., Pa. Pope LS/LS (SM)									
7/8/54	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	115	----	
8/3/54	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	123	NT	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	102	----	
9/14/54	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	121	----	
11/10/54	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	117	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	165	----	
*Bulk density and moisture content values questionable									
Site 26, Indiana Co., Pa. Clymer SiL/SiL (CL)									
7/8/54	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	146	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	248	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	155	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	268	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NT**	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	206	----	
4/19/55	29.0	30.1	[illegible]	[illegible]	[illegible]	[illegible]	30	NT**	
5/16/55	[illegible]	25.0	[illegible]	[illegible]	[illegible]	1.35	270	----	
Site 28, Indiana Co., Pa. Ernest L/L (CL)									
7/8/54	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.61	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	----	
11/10/54	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	164	----	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.63	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	----	
5/16/55	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	300	----	

(Continued)

Note: NT = no test. ** Penetrometer stopped by stones. † Measurement of 0- to 6-in. layer.

Table B3b (Continued)

Northeastern Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis, 0- to 6-in. Depth	Soil Moisture Content, Percent Weight Basis, 6- to 12-in. Depth	Soil Moisture Content, Percent Weight Basis, 12- to 18-in. Depth	Soil Moisture Content, 0- to 6-in. Depth	Soil Moisture Content, 6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 29, Indiana Co., Pa. Middle L/L (CL)								
7/8/54	36.0	27.7	23.5	2.63	2.38	207	----	
8/3/54	31.6	28.9	27.5	2.31	2.43	159	0.62†	
8/18/54	35.5	21.2	22.1	2.59	1.82	220	----	
9/14/54	31.1	24.8	30.1	2.27	2.13	[illegible]	----	
11/10/54	34.7	22.9	19.1	2.53	1.97	157	----	
3/15/55	28.7	24.1	23.5	2.09	2.05	184	----	
4/19/55	36.4	23.1	32.9	2.66	1.96	182	NT**	20
5/16/55	19.6	23.6	30.9	1.43	2.02	278	NT†	
Site 30, Indiana Co., Pa. Ernest Sil/SiL (CL)								
7/8/54	27.4	22.5	20.4	1.92	1.91	287	----	
8/3/54	34.1	27.7	24.2	2.39	2.35	130	0.58	
8/18/54	33.3	27.6	15.3	2.33	2.35	149	----	
9/14/54	32.2	27.3	25.0	2.25	2.32	166	----	
11/10/54	35.6	27.5	26.4	2.51	2.34	140	----	
3/15/55	37.4	29.0	26.1	2.66	2.46	190	----	
4/19/55	35.6	26.1	18.4	2.49	2.22	144	0.64	
5/17/55	22.6	22.0	23.9	1.58	1.87	300	----	
Site 31, Armstrong Co., Pa. Ernest L/L (CL-ML)								
7/8/54	23.3	21.3	23.8	2.00	2.04	194	----	
8/3/54	22.1	28.6	28.0	1.90	2.75	211	----	
8/18/54	25.3	22.8	29.1	2.18	2.19	172	----	
9/14/54	24.4	20.5	25.5	2.10	1.97	169	----	
11/10/54	26.0	24.2	24.3	2.24	2.32	161	0.58	
3/15/55	32.3	27.4	29.1	2.78	2.63	153	0.53	
4/19/55	26.4	25.0	27.5	2.27	2.40	160	----	
5/17/55	11.3	11.5	25.4	0.91	1.10	300	NT	
Site 32, Armstrong Co., Pa. Atkins L/L (ML)								
7/8/54	29.1	25.0	26.7	2.42	2.15	192	----	
8/3/54	33.1	25.5	24.0	2.75	2.19	212	----	
8/18/54	34.3	25.3	27.1	2.80	2.18	161	----	
9/14/54	31.8	27.8	25.4	2.64	2.39	220	----	
11/10/54	33.1	27.5	28.5	2.75	2.36	151	0.70	
3/15/55	34.0	29.3	27.8	2.82	2.52	195	0.75	
4/19/55	30.0	27.1	24.4	2.49	2.33	176	----	
5/17/55	26.3	24.1	22.9	2.18	2.07	300	NT	
Site 33, Armstrong Co., Pa. Philo SiL/SiL (ML)								
7/8/54	23.3	24.0	19.6	1.68	1.99	300	----	
8/3/54	27.2	20.2	15.0	1.96	1.58	300	----	
8/18/54	27.7	22.6	16.0	1.99	1.86	300	----	
9/14/54	22.7	20.8	19.5	1.63	1.73	292	----	
11/10/54	36.1	30.4	27.5	2.60	2.52	201	0.66	
3/15/55	38.2	31.4	30.4	2.75	2.81	183	0.56	
4/19/55	37.3	28.9	26.3	2.69	2.40	165	----	
5/17/55	27.2	24.6	22.3	1.96	2.04	300	NT	
Site 34, Armstrong Co., Pa. Brinkerton CL/L (CL)								
7/9/54	94.5	46.6	35.2	3.86	3.96	160	----	
8/3/54	87.2	68.3	41.8	3.49	5.85	88	0.51	
8/18/54	80.9	61.9	45.1	1.64	5.26	83	----	
9/14/54	90.1	39.0	34.1	3.60	3.31	90	----	
11/10/54	115.4	62.0	37.9	4.62	5.27	103	----	
3/15/55	95.4	48.8	36.7	3.42	4.15	147	----	0
4/19/55	130.0	61.3	47.9	5.20	5.21	52	0.27	1
5/17/55	122.1	58.5	37.2	4.88	4.97	145	----	10
Bulk density and moisture content values questionable								
Site 35, Armstrong Co., Pa. Philo L/L (CL)								
7/8/54	33.3	29.6	26.3	2.26	2.49	269	----	
8/3/54	35.0	27.3	23.6	2.38	2.29	272	----	
8/18/54	25.6	20.4	22.5	1.74	1.71	300	----	
9/14/54	24.3	24.3	19.4	1.65	2.04	300	----	
11/10/54	37.0	29.8	25.9	2.52	2.50	247	0.72	
3/15/55	41.7	34.2	30.7	2.84	2.67	210	----	9
4/19/55	40.0	33.3	33.7	2.72	2.80	158	0.46	12
5/17/55	34.4	29.9	33.3	2.34	2.51	241	----	
Site 36, Crawford Co., Pa. Holly SiL/SiL (ML)								
7/9/54	35.1	35.0	37.7	2.42	2.59	117	----	
8/4/54	21.7	20.5	28.9	1.50	1.52	287	----	
8/18/54	24.6	22.1	28.4	1.70	1.64	300	----	
9/14/54	16.4	16.2	29.6	1.13	1.20	300	----	
11/11/54	48.1	39.2	49.2	3.23	2.92	106	0.67	
3/15/55	44.8	41.2	35.3	3.09	3.05	117	----	3
4/20/55	48.5	45.0	42.5	3.35	3.33	74	0.66	4
5/17/55	44.0	37.0	40.6	3.04	2.74	147	----	18
Burned over before 4/20/55								
Site 37, Crawford Co., Pa. Holly SiL/SiL (ML)								
7/9/54	25.8	26.2	33.0	2.12	1.91	109	----	
8/4/54	20.6	26.5	31.6	1.69	1.93	300	----	
8/18/54	18.4	22.8	30.7	1.51	1.74	300	----	
9/14/54	20.2	25.0	27.8	1.66	1.82	300	----	
11/11/54	27.4	38.6	46.7	2.25	2.82	78	0.62	
3/15/55	25.1	35.7	45.2	2.30	2.62	127	----	
4/20/55	31.4	38.4	44.2	2.57	2.80	111	0.59	24
5/17/55	25.4	32.5	35.4	2.08	2.30	193	----	DRY
Site 38, Crawford Co., Pa. Holly SiL/SiL (ML)								
7/9/54	29.4	32.6	28.3	2.29	2.31	170	----	
8/4/54	16.4	23.9	24.2	1.28	1.70	300	----	
8/18/54	22.2	26.6	26.7	1.73	1.89	300	----	
9/14/54	12.3	21.4	22.6	0.96	1.52	300	----	
11/11/54	34.0	42.9	46.2	2.65	3.05	90	0.50	
3/15/55	37.2	44.4	47.3	2.90	3.15	127	----	
4/20/55	36.1	43.4	43.5	2.82	3.08	73	0.72	
5/17/55	29.4	37.9	40.5	2.30	2.69	183	----	
Site 39, Crawford Co., Pa. Braceville L/L (CL-ML)								
7/9/54	24.1	22.1	16.4	1.76	1.86	274	----	
8/4/54	17.5	15.3	11.9	1.38	1.29	300	----	
8/18/54	20.3	14.9	13.8	1.49	1.25	300	----	
9/14/54	13.0	14.4	10.8	0.95	1.21	300	----	
11/11/54	33.3	25.6	20.6	2.43	2.15	212	0.47†	
3/15/55	35.2	29.7	26.7	2.57	2.49	212	----	
4/20/55	27.8	38.8	26.9	2.03	3.26	121	----	
5/17/55	24.6	23.5	25.6	1.90	1.97	300	NT†	
Plowed before 4/20/55								
Site 40, Crawford Co., Pa. Tioga SiL/SiL (ML)								
7/9/54	22.8	22.1	24.4	1.69	1.68	244	----	
8/4/54	16.4	19.2	25.7	1.21	1.46	240	----	
8/18/54	20.3	20.2	27.0	1.48	1.54	300	----	
9/14/54	13.3	20.1	25.0	0.98	1.53	300	----	
11/11/54	33.0	35.1	41.7	2.44	2.68	137	0.68	
3/15/55	32.0	34.1	35.6	2.81	2.59	168	0.79	
4/20/55	31.4	28.0	32.1	2.32	2.13	123	NT	
5/17/55	16.1	22.4	30.7	1.19	1.70	253	NT	
Burned over before 4/20/55								
Site 41, Crawford Co., Pa. Tioga SiL/SiL (ML)								
7/9/54	23.5	15.1	14.3	1.67	1.25	280	----	
8/4/54	13.6	9.6	10.6	0.97	0.90	300	----	
8/18/54	18.2	10.0	9.9	1.29	0.83	300	----	
9/14/54	18.8	12.4	10.5	1.33	1.03	300	----	
11/11/54	36.9	37.7	30.1	2.62	3.13	155	0.53	
3/15/55	34.6	26.4	28.1	2.46	2.19	189	0.55	
4/20/55	33.6	29.7	27.1	2.39	2.47	125	----	
5/17/55	23.7	25.0	22.6	1.68	2.08	260	NT	
Site 42, Crawford Co., Pa. Tioga CL/SiL (ML)								
7/9/54	27.1	25.8	22.1	2.01	1.91	251	----	
8/4/54	20.5	15.3	15.4	1.50	1.21	300	----	
8/18/54	14.1	13.0	14.4	1.04	0.98	300	----	
9/14/54	14.5	15.5	13.7	1.01	1.15	300	----	
11/11/54	34.6	32.2	29.3	2.56	2.38	189	0.60	
3/15/55	32.3	34.1	28.7	2.39	2.52	200	0.71	
4/20/55	27.7	29.3	27.5	2.05	2.17	157	----	
5/17/55	25.3	26.5	25.4	1.47	1.96	264	NT	

(Continued)

Note: NT = no test.
** Penetrometer stopped by stones.
† Measurement of 0- to 6-in. layer.

Table B3b (Continued)

Northeastern Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis, 0- to 6-in. Depth	Soil Moisture Content, Percent Weight Basis, 6- to 12-in. Depth	Soil Moisture Content, Percent Weight Basis, 12- to 18-in. Depth	Soil Moisture Content, in./6 in., 0- to 6-in. Depth	Soil Moisture Content, in./6 in., 6- to 12-in. Depth	Cone Index, 6- to 12-in. Depth	Remolding Index, 6- to 12-in. Depth	Depth to Water Table in.
Site 43, Crawford Co., Pa. Frenchtown SiL/SiL (ML)								
7/9/54	31.0	25.8	17.9	1.89	1.88	257	----	
8/4/54	26.-	20.8	14.3	1.61	1.52	300	----	
8/19/54	30.3	21.2	19.4	1.85	1.55	300	----	
9/14/54	27.0	22.1	19.3	1.65	1.61	300	----	
11/11/54	53.3	43.9	43.4	3.25	3.20	131	0.72	
3/15/55	49.5	42.3	33.8	3.02	3.12	165	----	
4/20/55	45.9	39.3	31.1	2.76	2.87	126	----	
5/17/55	37.3	32.6	28.9	2.27	2.38	208	0.80	
Site 45, Cattaraugus Co., N. Y. Unadilla SiL/SiL (ML)								
7/10/54	20.0	18.6	16.9	1.28	1.54	300	----	
8/4/54	27.4	16.5	14.8	1.75	1.37	300	----	
8/19/54	13.7	14.2	14.3	0.88	1.18	300	----	
9/15/54	18.0	15.7	14.1	1.15	1.30	300	----	
10/19/54	29.8	25.6	22.7	1.91	2.12	202	0.74	
3/16/55	40.7	34.0	31.5	2.60	2.82	172	0.58	
4/20/55	33.6	30.6	26.9	2.15	2.54	127	----	
5/17/55	31.9	26.0	22.6	2.04	2.16	250	----	
Site 47, Cattaraugus Co., N. Y. Chenango SiL/SiL (ML)								
7/10/54	24.3	24.6	24.6	1.31	1.75	233	----	
8/4/54	22.6	15.6	14.5	1.22	1.11	300	----	
8/19/54	19.6	15.8	15.3	1.06	1.12	300	----	
9/15/54	17.8	14.6	14.3	0.96	1.04	300	----	
10/19/54	36.6	34.1	30.8	1.98	2.42	176	NT†	
3/16/55	41.7	38.4	35.0	2.25	2.73	180	0.70 †	
4/20/55	38.5	29.7	27.9	2.08	2.11	171	0.70 †	
5/17/55	26.0	25.5	26.0	1.40	1.81	221	----	
Site 49, Niagara Co., N. Y. Lakemont, SiCL/SiC (CH)								
7/10/54	19.7	19.3	21.5	1.32	1.66	300	----	
8/5/54	28.0	20.4	20.9	1.92	1.75	300	----	
8/19/54	24.7	22.2	22.8	1.65	1.91	296	----	
9/15/54	42.4	27.3	27.9	2.84	2.35	209	----	
10/20/54	44.4	35.8	27.-	2.97	3.08	122	0.84	
3/16/55	47.9	43.5	34.9	3.20	3.74	148	0.66	3
4/21/55	48.1	36.4	35.8	3.22	3.13	109	----	1
5/18/55	26.1	26.4	27.7	1.75	2.27	242	NT	DRY
Site 52, Niagara Co., N. Y. Schoharie SiL/SiC (CL)								
7/11/54	14.1	17.3	15.5	1.03	1.54	300	----	
8/5/54	24.4	16.5	17.0	1.05	1.47	300	----	
8/19/54	15.7	17.6	16.0	1.15	1.57	300	----	
9/15/54	20.7	24.7	20.4	1.24	2.00	251	----	
10/20/54	39.9	30.0	26.2	2.91	2.67	174	0.62†	
3/16/55	36.6	30.2	28.1	2.66	2.74	182	----	0
4/21/55	33.0	31.3	27.6	2.77	2.73	104	0.76	2
5/18/55	21.7	23.2	25.3	1.58	2.06	300	----	DRY
Site 54, Niagara Co., N. Y. Junius L/L (ML)								
7/11/54	14.2	11.8	7.7	1.06	1.01	300	----	
8/5/54	27.-	13.0	10.6	2.06	1.57	271	----	
8/19/54	20.0	12.9	9.8	1.50	1.11	300	----	
9/15/54	30.3	21.5	15.2	2.27	1.85	165	----	
10/20/54	35.7	31.0	26.8	2.68	2.67	82	0.39	
3/16/55	47.7	32.3	29.4	3.58	2.78	109	----	3
4/21/55	39.5	27.1	24.3	2.96	2.33	60	0.45	5
5/18/55	29.7	21.3	17.5	2.20	1.83	183	----	DRY
Site 56, Niagara Co., N. Y. Collamer SiL/SiL (CL)								
7/11/54	8.3	10.2	8.9	0.66	0.86	300	----	
8/5/54	11.6	11.0	11.0	0.93	0.92	300	----	
8/19/54	8.1	8.2	9.9	0.65	0.69	300	----	
9/15/54	24.1	17.7	9.6	1.93	1.49	300	----	
10/20/54	26.5	24.5	20.3	2.12	2.06	167	NT	
4/21/55	30.5	25.0	19.4	2.44	2.10	123	0.59	
4/20/55	28.7	25.6	22.2	2.30	2.15	--	----	
5/13/55	22.3	19.1	19.7	1.82	1.60	300	NT	

Sample Date	Soil Moisture Content, Percent Weight Basis, 0- to 6-in. Depth	Soil Moisture Content, Percent Weight Basis, 6- to 12 in. Depth	Soil Moisture Content, Percent Weight Basis, 12- to 18-in. Depth	Soil Moisture Content, in./6 in., 0- to 6-in. Depth	Soil Moisture Content, in./6 in., 6- to 12-in. Depth	Cone Index, 6- to 12-in. Depth	Remolding Index, 6- to 12-in. Depth	Depth to Water Table in.
Site 44, Cattaraugus Co., N. Y. Unadilla SiL/SiL (CL-ML)								
7/10/54	12.8	21.7	21.5	0.93	1.78	292	----	
8/4/54	22.0	17.4	15.8	1.43	1.42	300	----	
8/19/54	21.2	15.3	10.1	1.38	1.25	300	----	
9/15/54	18.7	12.5	11.0	1.22	1.02	300	----	
10/19/54	32.3	24.0	21.3	2.13	1.97	197	0.66	
3/16/55	43.7	31.0	27.4	2.84	2.54	158	0.62	
4/20/55	41.7	27.6	24.3	2.72	2.26	142	----	
5/17/55	31.5	24.3	23.1	2.05	1.99	223	----	
Site 46, Cattaraugus Co., N. Y. Tyler Muck/SiCL (OH)								
7/10/54	97.6	65.7	51.2	3.88	3.81	90	----	
8/4/54	69.4	52.8	26.6	2.78	3.06	135	----	
8/19/54	77.8	60.0	36.4	3.11	3.48	149	----	
9/15/54	56.1	48.9	38.5	2.24	2.84	157	----	
10/19/54	121.1	109.8	89.5	4.84	6.37	66	0.36	
3/16/55		Flooded						
4/20/55		Flooded						
5/17/55		Flooded						
Bulk density and moisture content values questionable								
Site 48, Cattaraugus Co., N. Y. Unadilla SiL/SiL (CL-ML)								
7/10/54	30.3	24.0	21.1	3.00	2.02	261	----	
8/4/54	26.4	20.3	16.7	1.74	1.71	300	----	
8/19/54	25.9	22.1	19.4	1.71	1.86	300	----	
9/15/54	27.8	20.6	17.4	1.83	1.73	300	----	
10/19/54	42.0	27.5	24.3	2.77	2.31	167	0.68	
3/16/55	41.9	33.3	26.8	2.77	2.80	167	0.73	
4/20/55	37.6	25.3	23.9	2.48	2.13	144	----	
5/17/55	26.4	24.0	22.2	1.74	2.02	300	----	
Site 50, Niagara Co., N. Y. Lakemont SiL/SiL (CL)								
7/10/54	14.6	15.4	16.1	1.17	1.32	300	----	
8/5/54	18.4	17.6	15.2	1.47	1.51	300	----	
8/19/54	18.0	19.2	16.3	1.44	1.65	300	----	
9/15/54	26.0	22.5	20.0	2.08	1.93	229	----	
10/20/54	42.3	40.0	32.3	3.38	3.44	109	0.82	
3/16/55	45.0	41.4	34.6	3.60	3.56	123	----	0
4/21/55		Flooded						
5/18/55	18.5	22.5	21.5	1.48	1.94	204	0.70	DRY
Site 53, Niagara Co., N. Y. Junius L/L (CL-ML)								
7/11/54	12.1	11.6	11.6	0.98	1.03	300	----	
8/5/54	22.8	10.4	9.0	1.85	0.93	300	----	
8/19/54	16.5	12.2	10.9	1.34	1.09	300	----	
9/15/54	25.0	22.0	15.9	2.02	1.98	202	----	
10/20/54	29.1	25.6	20.9	2.36	2.28	129	0.50	
3/16/55	39.6	30.5	29.1	3.21	2.71	180	----	3
4/21/55	33.0	28.8	18.9	2.07	2.56	94	0.41	5
5/18/55	24.4	21.4	20.3	1.98	1.90	219	----	
Site 55, Niagara Co., N. Y. Fulton L/L (CL)								
7/11/54	9.9	10.4	10.5	0.81	0.93	300	----	
8/5/54	18.5	11.9	12.0	1.52	1.06	300	----	
8/19/54	13.1	10.8	11.3	1.07	0.96	300	----	
9/15/54	23.3	15.1	16.7	1.91	1.34	276	----	
10/20/54	27.0	21.4	20.7	2.21	1.90	181	0.68	
3/16/55	40.5	34.4	28.1	3.32	3.06	139	0.59	0
4/21/55	35.3	33.8	26.3	2.89	3.01	83	----	1
5/18/55	21.3	20.9	20.7	1.75	1.85	219	1.00	DRY
Site 57, Niagara Co., N. Y. Dunkirk SL/L (ML)								
7/11/54	8.7	7.9	8.9	0.67	0.69	300	----	
8/5/54	13.1	7.6	5.8	1.01	0.66	300	----	
8/19/54	9.5	5.3	5.0	0.73	0.46	300	----	
9/15/54	23.1	11.3	7.2	1.78	0.98	300	----	
10/20/54	26.4	22.4	21.9	2.03	1.95	162	NT	
4/21/55	35.5	30.9	27.6	2.58	2.69	120	0.26	
4/26/55	32.5	31.2	29.3	2.50	2.71	--	----	
5/13/55	23.5	20.0	16.5	1.81	1.74	300	NT	

(Continued)

Note: NT = no test.
† Measurement of 0- to 6-in. layer.

Table B3t (Continued)

Northeastern Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis, 0- to 6-in. Depth	Soil Moisture Content, Percent Weight Basis, 6- to 12-in. Depth	Soil Moisture Content, Percent Weight Basis, 12- to 18-in. Depth	Soil Moisture Content, in./ft in., 0- to 6-in. Depth	Soil Moisture Content, in./ft in., 6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 57, Navarra Co., N. Y. Carrier Si/L (CL)								
7/11/54	9.0	9.8	9.9	0.53	0.89	300	----	
8/5/54	11.5	11.1	11.7	0.84	0.74	300	----	
8/19/54	8.1	7.9	8.3	0.59	0.72	300	----	
9/15/54	19.3	14.4	17.7	1.40	1.49	300	----	
10/20/54	25.5	19.1	19.4	1.86	1.74	300	----	
3/16/55	30.0	26.5	24.2	2.25	2.42	241	----	
4/21/55	30.0	28.5	21.9	2.20	2.32	274	----	
5/12/55	21.8	21.3	24.3	1.59	1.95	300	NT	
Site 58, Genesee Co., N. Y. Mid Si/L (ML)								
7/11/54	12.2	10.4	8.7	0.73	0.73	300	----	
8/5/54	37.5	22.4	12.7	2.40	1.57	206	----	
8/19/54	27.6	23.0	14.3	1.77	1.61	232	----	
9/15/54	36.8	29.5	18.4	2.36	2.06	171	----	
10/21/54	40.2	33.0	23.7	2.57	2.31	149	0.72	
3/16/55	50.9	35.3	25.1	3.26	2.54	148	----	
4/21/55	45.2	30.6	24.9	2.89	2.14	38	----	2
5/12/55	36.4	25.3	20.7	2.33	1.86	192	0.90	DRY
Site 60, Genesee Co., N. Y. Mid Si/L (ML)								
7/11/54	18.3	23.7	12.3	1.24	1.54	395	----	
8/5/54	37.5	31.4	13.4	2.55	2.04	289	----	
8/19/54	33.3	32.3	30.0	2.26	2.10	281	----	
9/15/54	41.9	29.7	19.0	2.95	1.92	175	----	
10/21/54	54.9	34.0	20.2	3.73	2.21	141	0.54†	
3/16/55	51.5	43.7	24.5	3.50	3.17	174	----	0
4/21/55		Flooded						
5/13/55	40.6	32.9	20.4	2.75	2.14	207	0.75	DRY
Site 61, Genesee Co., N. Y. Mid Si/L (ML)								
7/11/54	22.2	17.5	7.9	1.31	1.43	300	----	
8/5/54	41.6	30.1	23.5	2.45	2.47	277	----	
8/19/54	34.3	37.7	24.6	2.02	2.87	273	----	
9/15/54	36.0	26.9	11.3	2.12	2.21	220	----	
10/21/54	55.8	41.8	26.5	3.35	3.43	137	0.58	
3/16/55	54.5	48.4	30.1	3.22	3.97	122	----	0
4/21/55		Flooded						
5/13/55	57.0	30.2	19.2	3.36	2.43	154	0.73	30
Site 62, Tioga Co., Pa. Tioga Si/Si (ML)								
7/12/54	13.7	13.6	15.2	1.00	1.03	300	----	
8/2/54	19.2	11.2	11.3	1.40	0.85	293	----	
8/20/54	10.2	9.5	9.7	0.74	0.73	300	----	
9/17/54	21.5	11.9	9.5	1.58	0.90	300	----	
11/11/54	21.8	18.5	11.3	1.59	1.41	246	NT	
4/4/55	31.0	25.4	22.0	2.26	1.93	167	1.05*	
4/22/55	25.7	17.2	14.1	1.88	1.31	109	1.04*	
Site 63, Tioga Co., Pa. Tioga Si/L (CL)								
7/12/54	14.1	13.0	13.2	1.07	1.00	300	----	
8/6/54	25.2	18.3	14.5	1.92	1.52	266	----	
8/20/54	19.0	15.9	16.8	1.44	1.32	300	----	
9/16/54	21.6	13.6	10.7	1.64	1.12	300	----	
11/11/54	32.4	19.6	21.4	2.46	1.63	236	NT	
4/4/55	27.9	22.1	18.9	2.12	1.83	216	0.92†	
4/22/55	30.5	21.5	17.0	2.32	1.78	143	0.82†	
5/19/55	14.6	16.2	16.5	1.11	1.34	300	----	
Burned over before 4/22/55								
Site 64, Tioga Co., Pa. Tioga Si/Si (ML)								
7/12/54	21.6	15.0	17.9	1.30	1.14	140	----	
8/6/54	34.0	19.4	13.9	2.04	1.47	175	NT	
8/20/54	33.5	13.5	12.0	1.41	1.03	114	----	
9/16/54	32.9	15.7	12.8	2.97	1.20	213	----	
11/11/54	32.1	20.5	20.5	1.93	1.87	144	----	
4/4/55	33.9	23.5	26.1	1.97	1.79	140	1.71*	
4/22/55	27.9	20.1	23.9	1.73	1.53	110	1.71*	
5/19/55	26.0	20.3	25.4	1.57	1.64	173	1.14*	
Site 65, Union Co., Pa. Huntington L/SL (ML)								
7/14/54	25.3	25.5	15.8	1.47	1.73	141	----	
8/2/54	13.3	19.5	13.6	0.77	1.33	159	----	
8/17/54	16.3	15.4	12.6	0.95	1.05	174	----	
9/13/54	28.6	26.1	18.1	1.66	1.77	106	1.20	
12/1/54	40.2	24.0	2.33	2.76	96	----		
3/14/55	43.8	35.6	28.8	2.54	2.42	118	----	
4/18/55	41.1	40.6	27.7	2.38	2.76	61	0.7	
5/16/55	20.8	21.4	21.5	1.21	1.46	159	1.11*	
Site 66, Union Co., Pa. Huntington L/SL (ML)								
7/14/54	12.5	9.9	7.8	0.72	0.72	239	----	
8/2/54	11.8	8.6	7.2	0.69	0.63	300	----	
8/17/54	12.2	7.3	6.0	0.71	0.53	254	----	
9/13/54	18.5	13.1	11.3	1.07	0.96	172	NT	
12/1/54	35.8	17.3	14.1	2.00	1.26	203	----	
3/14/55	40.2	22.4	21.0	2.53	1.54	139	----	
4/18/55	29.2	20.1	18.2	1.79	1.47	179	1.32*	
5/16/55	20.2	15.1	14.5	1.17	1.10	143	NT	
Site 67, Union Co., Pa. Melvin Si/Si (CL)								
7/14/54	17.8	19.8	19.4	1.42	1.66	300	----	
8/2/54	12.3	15.9	19.0	0.98	1.34	300	----	
8/17/54	14.3	15.7	16.7	1.14	1.32	300	----	
9/13/54	23.1	23.6	22.5	1.85	1.98	274	----	
12/1/54	32.3	29.4	27.5	2.58	2.47	191	0.64	
3/14/55	36.4	30.9	30.0	2.91	2.60	170	0.66	
4/13/55	33.1	30.2	27.9	2.65	2.54	133	0.60	
5/16/55	20.9	24.6	24.4	1.67	2.07	300	----	
Site 68, Union Co., Pa. Wheeling SiCL/SiCL (CL)								
7/14/54	13.2	15.2	15.1	1.07	1.34	300	----	
8/2/54	9.4	8.9	12.0	0.72	0.77	300	----	
8/17/54	10.1	8.6	12.5	0.84	0.76	300	----	
9/13/54	18.0	19.7	19.8	1.51	1.73	273	----	
12/1/54	26.3	24.3	24.1	2.13	2.14	168	0.56	
3/14/55	28.3	28.4	23.6	2.33	2.23	169	0.54	
4/18/55	24.8	24.2	21.9	2.17	2.13	134	0.56	
5/16/55	14.2	18.4	19.8	1.15	1.62	300	----	
Site 69, Centre Co., Pa Dunmore SiL/SiCL (CL)								
8/2/54	17.8	17.4	17.0	1.37	1.60	300	----	
8/17/54	23.7	26.3	25.9	2.06	2.46	247	----	
9/13/54	17.3	19.8	20.4	1.33	1.82	300	----	
11/3/54	31.2	31.0	30.8	2.40	2.85	175	----	
12/1/54	32.0	28.5	30.3	2.46	2.62	176	----	
3/14/55	33.1	33.2	27.9	2.55	2.59	197	0.84†	
4/18/55	31.4	25.9	29.3	2.42	2.38	164	NT	
5/16/55	19.6	24.3	31.0	1.51	2.28	300	NT †	
Site 70, Centre Co., Pa Arady SiL/SiL (ML)								
8/2/54	13.6	10.0	19.4	1.48	1.63	300	----	
8/17/54	26.7	23.7	20.2	2.19	2.01	300	----	
9/13/54	19.0	16.8	18.9	1.56	1.43	300	----	
11/3/54	28.6	26.3	24.0	2.35	2.24	214	----	
12/1/54	30.9	26.9	25.4	2.53	2.29	194	0.63†	
3/14/55	32.3	29.8	26.3	2.65	2.53	165	0.90	
4/18/55	30.4	25.8	24.2	2.49	2.19	165	0.53	
5/16/55	17.6	19.4	20.3	1.44	1.65	300	----	
Site 71, Monroe Co., N. Y. Palmyra SiL/SiL (ML)								
8/5/54	17.3	15.6	15.2	1.67	1.30	272	----	
8/20/54	25.2	16.5	13.2	1.12	0.86	300	----	
9/17/54	21.5	23.8	18.3	1.60	1.38	259	----	
11/3/54	30.0	31.5	29.3	1.72	1.84	199	----	
12/1/54	25.2	21.9	28.7	1.67	1.80	172	NT	
4/4/55	34.4	30.3	40.0	2.55	2.48	139	0.65*	
4/21/55	31.3	27.2	24.5	2.32	2.23	132	0.63*	
5/13/55	30.7	20.5	27.7	1.53	1.68	204	----	

(Continued)

Note: NT = no test.
* Vibrated remolding test.
† Measurement of 0- to 6-in. layer.

Table B3b (Continued)

Northeastern Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, In./6 In.: 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 73, Monroe Co., N. Y. "Madeland" L Si (CL-ML)								
8/5/54	19.1	1[illegible]	11.8	1.60	1.47	300	----	
8/20/54	11 1	7.9	9.1	0 93	0.75	300	----	
9/1[illegible]/54	20 2	12.3	13.0	1 70	1.17	300	----	
10/21/54	22 0	20.0	17.4	1.85	1.90	247	----	
11/5/54	24.0	20 1	19.0	2.02	1.91	201	0.59†	
4/4/55	25 0	25.2	22 6	2.23	2.39	157	0.68†	
4/21/55	24.8	22.7	20.2	2 08	2.16	141	----	
5/18/55	15 9	23 6	28.9	1.34	2.24	300	----	
Site 75, Monroe Co., N. Y. Hilton SiL/SiL (CL)								
8/5/54	20.0	14.8	13.3	1.52	1.36	300	----	
8/20/54	10.6	9.8	9.8	0.81	0.90	300	----	
9/16/54	25.2	14.5	15.3	1.32	1.33	300	----	
10/21/54	29.8	20.9	20.8	2.26	1.92	263	----	
11/5/54	29.3	21.8	23.8	2.23	2.01	217	NT †	
4/4/55	33.7	25.2	21.5	2.56	2.32	178	0.61†	8
4/21/55	32.1	23.5	21.3	2.44	2.16	158	----	10
5/18/55	18.7	16.7	18.5	1.42	1.54	300	NT	
Burned over before 4/21/55								
Site 77, Monroe Co., N. Y. Colwood SiCl (CL)								
8/5/54	19.0	16 0	14.3	1 21	1.12	300	----	
8/20/54	16 9	11.9	13.2	1.08	0.83	291	----	
9/16/54	27 8	17 1	12.9	1.74	1.24	245	----	
10/21/54	34 1	31.0	22.5	2.18	2.17	160	----	
11/5/54	39 8	37.2	37.8	2.48	2.60	130	0.42	
4/4/55	38 5	49.2	27.9	3.35	3.44	116	----	5
4/21/55	50 0	47 5	39.1	3.20	3.26	81	----	
5/18/55	43.5	40 8	30.9	2 78	2 86	150	0.39	
Site 78, Monroe Co., N. Y. Muck (Pt)								
8/6/54	68.3	65.9	110.6	2.87	3.29	146	----	
8/20/54	70.9	58.8	80.3	2.38	2.94	117	----	
9/16/54	74.1	68.7	113.0	3.11	3.43	113	----	
10/21/54	85.3	66.9	107.6	3.58	3.34	107	----	
11/5/54	Flooded							
4/4/55	Flooded							
4/21/55	Flooded							
5/18/55	Flooded							
Bulk density and moisture content values questionable								
Site 79, Monroe Co., N. Y. Olcottsburg SiL/SiL (CL)								
8/5/54	23.7	18.0	17 [illegible]	1.8[illegible]	1 73	300	----	
8/20/54	23.[illegible]	20.0	18.2	1.8[illegible]	1.92	300	----	
9/16/54	24.[illegible]	22.7	21.4	2.[illegible]	2.20	282	----	
10/21/54	42.9	28.3	24.[illegible]	3.30	2.72	243	----	
11/5/54	39.8	27.3	37.9	2.8[illegible]	2.62	219	0.70	
4/4/55	Flooded							
4/21/55	43.1	29.2	30.0	3.32	2.60	167	0.56	1
5/18/55	29.2	22.0	23.[illegible]	2.[illegible]	2.17	300	NT	
Site 80, Monroe Co., N. Y. Tonawanda SiL/SiL (ML)								
8/6/54	22.1	18.7	16.7	1.46	1.38	300	----	
8/20/54	24.4	23.9	19.7	1.61	1.77	264	----	
9/16/54	32.9	22.0	15.2	2.17	1.63	277	----	
10/21/54	49.8	40.1	26.6	3.29	2.97	162	----	
11/5/54	41.6	39.3	24.0	2.75	2.91	145	0.74	
4/4/55	Flooded							
4/21/55	53.6	41.8	30.5	3.54	3.09	91	0.70	5
5/18/55	33.3	34.5	23.4	2.20	2.55	223	----	
Site 101, Fairfield Co., Conn. Merrimac SL/SL (ML)								
7/19/54	15.5	16.7	19.4	1.10	1.37	232	----	
8/10/54	26.2	24 5	22.3	1.36	2.01	169	----	
8/30/54	17.9	17.6	13.9	1.27	1.44	300	----	
9/21/54	34.8	28.4	28 1	2.47	2.33	104	0.51	
10/11/54	29.1	23 3	24.2	2.07	1.95	209	----	
4/11/55	35.4	31.3	29 1	2.51	2.57	149	0.72	
5/3/55	33.6	27.5	23.5	2.39	2.25	181	----	
5/23/55	20 3	21.6	21.3	1.49	1.77	201	----	
Site 103, Fairfield Co., Conn. Rumney SL/SL (ML)								
7/19/54	36.4	21.0	16.8	2.33	1.62	206	----	
8/20/54	41.7	32.2	18.1	2.67	2.48	164	----	
8/30/54	38.5	30.3	24.1	2.46	2.37	181	----	
9/21/54	43.5	32.4	23.1	2.78	2.49	146	0.77	
10/11/54	42.2	35.2	28.8	2.70	2.71	150	----	
4/11/55	42.9	30.4	28.2	2.75	2.49	134	0.71	18
5/3/55	43.5	32.7	27.3	2.78	2.52	167	----	24
5/23/55	42.2	33.1	25.4	2.70	2.55	164	----	
Site 104, New Haven Co., Conn. Cheshire SiL/L (ML)								
7/20/54	12 6	10.7	11.5	0.82	0.95	300	----	
8/10/54	29 0	26 7	15.8	1.38	2.11	179	----	
8/30/54	12 2	10.9	8.5	0.79	0 86	300	----	
9/21/54	21 4	26.1	23 5	2.04	2.06	102	1.01†	
10/12/54	22 5	22 2	19.8	1 46	1.75	300	----	
4/11/55	27.4	27 0	23.4	1.78	2.13	176	0.64	
5/9/55	35.2	29.0	25.6	2 29	2.29	152	0 90	
5/23/55	22.1	21 7	22 0	1.44	1 72	116	----	
Site 105, New Haven Co., Conn. Cheshire SL/SL (ML)								
7/20/54	13.4	12.7	10.9	1.11	1.09	300	----	
8/10/54	19.5	20.8	21 6	1.62	1.79	300	----	
8/30/54	12.6	13.8	14.1	1.05	1.19	300	----	
9/21/54	21.6	23.0	22.1	1.79	1.98	300	----	
10/12/54	13.3	16.4	16.4	1.56	1.41	300	----	
4/11/55	23.4	22 0	20.4	1.94	1.89	300	0.65†	
5/9/55	22.6	22.5	19 1	1.88	1.93	300	0.67†	
5/23/55	12.7	16.1	16.3	1.05	1.38	300+	NT	
Site 106, New Haven Co., Conn Ludlow SL/SL (SM)								
7/20/54	23.6	18.3	16.3	1.77	1.63	300	----	
8/10/54	32.7	25.9	23.5	2.45	2 31	160	----	
8/30/54	26.7	19.6	16.5	2.00	1 74	300	----	
9/21/54	30.1	22.3	20.2	2.26	1.98	152	0.52	
10/12/54	33 0	20.0	19 0	2.47	1.78	277	----	
4/11/55	33 3	23.3	20.6	2 50	2.07	195	0.65	
5/9/55	31.9	24.7	23 0	2.39	2.20	176	----	
5/23/55	22 6	18.8	18.3	1.70	1.[illegible]7	228	----	
Site 107, New Haven Co., Conn. Ludlow L/L (CL-ML)								
7/20/54	24.1	21 4	19.9	1.5[illegible]	1.37	234	----	
8/10/54	32.8	26.9	23.1	2.10	1.72	134	----	
8/30/54	25.2	13.0	16.9	1 21	1.15	282	----	
9/21/54	33.0	24.7	24.4	2.11	1.58	120	0.62	
10/12/54	31.5	22.1	22.1	2.02	1.41	221	----	
4/11/55	34.6	25.4	20.7	2.21	2.08	169	0.71	
5/9/55	38.7	28.3	26.1	2.48	2.32	167	----	
5/23/55	24.7	22.5	22.2	1.58	1.84	150	----	

(Continued)

Note: NT = no test.
† Measurement of 0- to 6-in. layer.

Table B3b (Continued)

Northeastern Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, in./6 in.: 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index 0- to 12-in. Depth	Remolding Index 0- to 12-in. Depth	Depth to Water Table in.
Site 10 , Hartford Co , Conn Elmwood SiL/SiL (ML)								
7/20/54	12 5	13.9	13.4	0.84	1.15	300	----	
8/10/54	31.9	24.3	20.9	2.14	2.06	238	----	
8/30/54	25.3	25.6	22.0	1.73	2.12	300	----	
9/22/54	42.8	34.1	34.1	2.87	2.33	168	0.55	
10/12/54	35.8	23 0	22.9	2.40	2.32	272	----	
4/12 55	43.4	32.2	25.4	2.91	2.67	158	0.53	
5/9/55	44.0	33.1	26.5	2.95	2.75	181	----	11
5/23/55	29 9	27.4	21.0	2.00	2.27	287	----	
Site 110, Hartford Co , Conn. Elmwood L/L (CL)								
7/21/54	13 4	15.6	21.6	0.95	1.39	300	----	
8/10/54	34.4	25.3	27.3	2.44	2.25	225	----	
8/30/54	23 3	20.6	23.7	1 65	1.33	300	----	
9/22/54	39.0	27 8	30.5	2.77	2.47	138	0.72	
10/12/54	38.3	26.6	27 9	2.75	2 36	228	----	
4/12/ 5	45.2	28.4	30.2	3.21	2.53	103	0.57	
5/9/55	45.2	30.8	32.6	3.28	2 74	145	----	
5/23/55	33.1	23 7	26.4	2.35	2.11	206	----	
Site 112, Hartford Co., Conn Carver, LS/LS (SM)								
7/21/54	8.0	3.6	1.5	0.51	0.32	170	----	
8/10/54	18.3	9.6	9.2	1.17	0.85	137	----	
8/30/54	11.7	4.7	4.4	0.75	0 4^	213	----	
9/22/54	17.7	10.5	11.8	1.13	0.93	117	NT	
10/12/54	14.9	8.6	8.0	0.95	0.78	141	----	
4/12/55	13.6	9.8	11.6	1.19	0.87	147	1.42	
5/9/55	20 0	12.4	12.4	1.28	1.10	1_7	----	
5/23/55	17.0	9.0	10.1	1.09	0.80	107	----	
Site 114, Hartford Co., Conn. Merrimac LS/LS (SM)								
7/21/54	10.5	8.1	8.6	0.97	0.76	260	----	
8/11/54	16 7	15.7	14.0	1.54	1.48	179	----	
8/ 1/54	22.9	18.2	16.2	2.11	1.71	175	NT	
9/22/54	16.9	15.3	14.1	1 55	1.44	201	----	
10/12/54	13 6	11 6	11.0	1 25	1.09	236	----	
4/12/55	17 7	16.0	14.1	1.63	1 50	181	1.08*	
5/9/55	18.3	14.9	13.4	1 68	1.40	171	----	
5/23/55	9 6	10.9	11.4	0.88	1.02	176	----	
Site 116, Tolland Co., Conn Infield SiL/SiL (ML)								
7/21/54	21 9	16.3	15 7	0.90	1.09	193	----	
8/11/54	36.8	24 4	20 2	1.51	1 63	120	----	
8/31/54	34.6	23.7	19 5	1.42	1 59	135	----	
9/22/54	39 6	29.9	23.9	1.62	2.00	114	NT †	
10/12/54	30.3	22.8	24.0	1.24	1.53	173	----	
4/12/55	41.8	30.0	28 2	1.71	2.01	161	0.96	
5/9/55	45 5	31.0	30.6	1.87	2.08	149	0.38	
5/24/55	41.5	28.2	24.8	1.70	1.89	127	----	
Bulk density and moisture content values questionable								
Site 118, Tolland Co., Conn. Gloucester SL/SL (CM)								
7/21/54	12 3	9.2	6.9	0.91	0.86	200	----	
8/11/54	21.9	15 4	14.7	1.62	1.45	105	----	
8/31/54	24 3	19.4	17 9	1.80	1.32	128	1.44	
9/22/54	30.7	15.0	13.9	0 53	1.41	131	----	
10/12/54	17.0	12.6	11.8	1.26	1.18	168	----	
4/12/55	22.7	15.7	13.6	1.68	1.48	151	1.55†*	
5/9/55	20.8	17 1	14.4	1.54	1.61	158	----	
5/24/55	16.8	13.0	11 0	1.24	1.22	121	----	
Site 120, Hampden Co., Mass. Walpole SL/SL (ML)								
7/22/54	25.8	24.3	20 3	1.68	1.99	141	----	
8/11/54	35 6	31 7	21.9	2.31	2.60	114	----	
9/1/54	26.0	28.0	20.5	1.69	2.30	133	1.08	
9/23/54	29.5	28.0	22.8	1.92	2.30	119	----	
10/13/54	28 3	26.4	19.6	1 84	2 16	139	----	
4/12/55	35.3	33 0	24.8	2.36	2.71	140	0.49	
5/9/55	38 3	36.	29.7	2.48	2.98	139	----	
5/24/55	3 .5	32 1	27.9	2.37	2 63	98	----	
Bulk de s.t and moisture content values questionable								

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, in./6 in.: 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index 0- to 12-in. Depth	Remolding Index 0- to 12-in. Depth	Depth to Water Table in.
Site 109, Hartford Co., Conn. Chalker SiL/SiL (CL)								
7/20/54	32.9	28.3	25.0	2.34	2.41	300	----	
8/10/54	39.5	30.9	31.0	2.80	2.63	155	----	
8/30/54	30.6	28.7	29.3	2.17	2.44	258	----	
9/22/54	36.0	30.2	32.5	2.56	2.57	158	0.56	
10/12/54	33.6	32.8	30.5	2.39	2.79	212	----	
4/12/55	41.6	29.8	30.7	2.95	2.53	156	0.61	10
5/9/55	44.4	34.1	33.3	3.15	2.90	162	----	9
5/23/55	36.5	30.4	33.2	2.59	2.58	173	----	
Site 111, Hartford Co., Conn. Hadley SiL/SiL (ML)								
7/21/54	13.9	16.7	22.4	1.10	1.37	300	----	
8/10/54	29.6	24.6	26.9	2.34	2.02	205	----	
8/30/54	21.2	20.9	22.4	1.67	1.71	274	----	
9/22/54	29.2	27.9	31.5	2.31	2.29	175	NT	
10/12/54	26.5	23.0	26.8	2.09	1.97	266	----	
4/12/55	33.8	29.4	31.2	2.67	2.41	192	0.84	
5/9/55	34.1	30.7	31.2	2.69	2.52	209	0.78	
5/23/55	28.0	22.6	26.3	2.21	1.87	196	----	
Site 113, Hartford Co., Conn. Merrimac SiL/SL (ML)								
7/21/54	14.5	7.0	6.8	0.94	0.53	266	----	
8/10/54	20.3	15.5	11.6	1.32	1.18	209	----	
8/30/54	10.6	6.5	6.4	0.69	0.49	300	----	
9/22/54	28.1	22.9	24.8	1.83	1.74	120	0.56	
10/12/54	26.7	19.7	21.4	1.73	1.50	207	----	
4/12/55	36.6	28.4	28.1	2.38	2.16	143	1.34*	
5/9/55	37.5	26.2	27.2	2.44	1.99	151	0.74	
5/23/55	34.2	22.6	23.7	2.22	1.72	117	----	
Site 115, Hartford Co., Conn. Merrimac SL/SL (SM)								
7/21/54	9.9	6.6	6.3	0.86	0.65	243	----	
8/11/54	19.0	15.6	15.1	1.65	1.54	221	----	
8/31/54	22.8	18.3	16.9	1.98	1.81	177	NT	
9/22/54	19.4	16.8	17.5	1.69	1.66	192	----	
10/12/54	16.8	14.8	15.1	1.45	1.47	213	----	
4/12/55	20.7	18.0	15.0	1.80	1.78	171	1.74*	
5/9/55	19.7	18.0	17.7	1.71	1.78	172	----	
5/23/55	17.8	14.8	14.2	1.55	1.47	155	----	
Site 117, Tolland Co., Conn. Infield SL/SiL (ML)								
7/21/54	13.7	8.8	7.9	1.07	0.83	300	----	
8/11/54	19.7	16.3	13.2	1.54	1.39	300	----	
8/31/54	23.3	19.2	13.1	1.82	1.63	300	----	
9/22/54	20.3	19.8	20.6	1.58	1.68	300	NT**	
10/12/54	16.6	17.2	19.6	1.29	1.46	300	----	
4/12/55	24.0	24.3	23.3	1.37	2.07	236	1.20*†	
5/9/55	25.2	23.6	28.8	1.37	2.24	259	NT**	
5/24/55	16.8	15.7	12.4	1.31	1.33	287	----	
Site 119, Hampden Co., Mass. Merrimac CL/SL (SC-SM)								
7/22/54	8.7	5.8	7.5	0.60	0.81	300	----	
8/11/54	24.2	16.2	10.7	1.67	1 49	230	----	
9/1/54	19.5	15.8	16.2	1.35	1.73	222	----	
9/23/54	28.0	17.2	19 6	1.93	1.77	178	NT	
10/13/54	24.0	19.4	16.0	1.66	1.75	211	----	
4/12/55	29.0	24.5	17.3	2.00	2.15	176	0.73 †	
5/3/55	30.1	23.7	22.4	2.31	2.13	181	0.77 †	
5/24/55	28.1	18.6	16.5	1.52	1.71	160	----	
Site 121, Hampden Co., Mass. Agawam LS/LS (SM)								
7/22/54	8.6	3.1	4 3	0.73	0.29	300	----	
8/11/54	15 3	9.3	7.9	1.30	0.76	300	----	
9/1/54	14 3	15.1	14.2	1.22	1.40	227	NT	
9/23/54	14.9	13.6	14.2	1.27	1 26	270	----	
10/13/54	12.0	11 2	12 4	1.02	1.04	253	----	
4/12/55	13.7	14.0	13.1	1.16	1.30	179	1.54*	
5/9/55	14.2	13.4	15.0	1.21	1.25	212	NT	
5/24/55	8.3	10.5	12.1	0.71	0.98	195	----	

(Continued)

Note: NT no test.
* Vibrated remolding test.
† Measurement of 0- to 6-in. layer.
** Penetrometer stopped by stones.

Table B3b (Continued)

Northeastern Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis, in. in. 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Cone Index, in. in. 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 1..., Worthen Co., Mass. Merrimac LS/LS (SM)								
7/22/54	7.0	6.2	4.7	0.57	0.56	280	----	
9/11/54	14.1	8.3	6.7	1.16	0.81	260	----	
9/1/54	13....	13.2	11.0	1.12	1.00	131	NT	
9/23/54	17.8	14.4	13.0	1.46	1.31	129	----	
10/13/54	12.4	9....	8.9	1.02	0.87	209	----	
4/12/55	14.1	14.3	13.2	1.32	1.34	151	2.04*	
5/9/55	19.2	14.4	13.7	1.57	1.31	150	----	
5/24/55	16.9	11.4	11.2	1.39	1.04	104	----	
Site 124, Hampshire Co., Mass. Ninevah S/S (SM)								
7/22/54	9.7	7.0	6.9	0.84	0.69	210	----	
9/11/54	12.9	14.7	10.7	1.12	1.25	206	----	
9/1/54	16.4	14.0	11.9	1.43	1.19	240	----	
9/23/54	17.9	14.4	10.8	1.04	1.22	174	NT	
10/13/54	11.3	9.8	7.2	0.98	0.83	239	----	
4/12/55	13.5	12.7	8.1	1.16	1.08	198	2.06* †	
5/9/55	13.6	11.1	9.1	1.17	0.94	281	----	
5/24/55	6.4	6.7	4.9	0.55	0.57	249	----	
Site 125, Hampshire Co., Mass. Woodbridge SL/SL (SM)								
7/22/54	26.6	20.6	12.9	1.01	1.54	217	----	
9/11/54	31.3	24.3	16.3	2.17	1.96	170	----	
9/1/54	34.0	27.0	21.6	2.31	1.82	190	NT	
9/23/54	30.2	24.2	19.4	1.05	1.81	178	----	
10/13/54	32.1	24.8	16.7	2.13	1.78	191	----	
4/12/55	42.3	20.5	23.0	2.18	2.29	Frost	----	
5/9/55	36.2	28.7	19.5	1.50	2.16	149	NT	
5/24/55	30.7	23.9	16.4	1.09	1.72	143	NT	
Site 126, Hampshire Co., Mass. Woodbridge SiL/SL (SC)								
7/22/54	37.8	34.3	25.2	2.57	2.71	211	----	
9/11/54	41.4	37.4	34.0	2.82	2.95	202	----	
9/1/54	44.0	34.4	26.3	1.99	2.72	175	----	
9/23/54	44.8	42.0	24.5	3.05	3.38	213	0.64 †	
10/13/54	43.2	34.1	22.0	2.94	2.69	255	----	
4/12/55			Fro en					
5/9/55	49.2	44....	41.5	3.35	3.68	150	0.59 †	
5/24/55	40.6	38.3	27.1	2.77	3.03	189	----	
Site 127, Hampshire Co., Mass. Woodbridge SL/SL (SM)								
7/22/54	48.2	40.5	40.2	3.99	3.12	157	----	
9/11/54	59.2	44.7	42.1	3.67	3.44	140	----	
9/1/54	52.5	37.6	39.7	3.26	2.90	129	----	
9/23/54	58.9	46.2	43.7	3.65	3.56	141	----	
10/13/54	0	45.1	54.2	3.08	3.47	196	0.52 †	
4/12/55				Frozen				
5/9/55	57.9	41.4	34.3	3.59	3.19	149	0.55 †	
5/24/55	54.6	39.7	27.4	3.39	3.06	149	----	
Site 128, Hampshire C..., Mass. Saxton S/L (SM)								
7/22/54	18.8	18.8	33.3	1.49	2.10	300	----	
9/11/54	36.7	38....	40.1	3.01	3.55	113	----	
9/1/54	37.7	37.1	41.0	3.09	3.41	133	0.39	
9/23/54	38.0	35.5	40.4	3.12	3.37	138	----	
10/13/54	30.7	27.9	35.3	2.54	2.57	135	----	
4/13/55	39.7	32....	41.5	3.26	3.05	107	0.58	
5/9/55	35.1	35.4	41.9	3.33	3.26	139	----	
5/24/55	29.8	23.1	23.7	2.44	2.59	146	----	
Bulk densit, and moisture content values questionable								
Site 129, Hampshire Co., Mass. Suffield SiL/SiL (ML)								
7/22/54	21.3	21.3	29.5	1.60	1.74	300	----	
9/11/54	30.3	28.3	31.1	2.27	2.26	249	----	
9/1/54	32.0	30.7	34.8	2.40	2.46	300	----	
9/23/54	33.1	30.3	40.4	2.48	2.42	159	0.60	
10/13/54	32.6	30.3	39.8	2.44	2.42	287	----	
4/13/55	36.0	37.2	32.9	2.70	2.98	174	0.48	
5/9/55	37.2	33.1	37.8	2.79	2.65	242	----	
5/24/55	28.8	23.2	18.2	2.01	1.86	268	----	
Site 130, Hampshire Co., Mass. Melrose SL/SiL (ML)								
7/22/54	28.7	25.2	27.0	1.53	1.76	123	----	
9/11/54	35.3	27.9	30.7	1.47	1.95	141	----	
9/1/54	35.0	30.2	34.6	2.00	2.11	155	NT	
9/23/54	33.1	30.6	33.7	1.94	2.13	132	----	
10/13/54	34.0	29.4	30.3	1.96	1.97	130	----	
4/13/55	37.6	31.2	33.2	2.62	2.54	230	0.59	
5/9/55	34.0	34....	36.5	2.38	2.42	144	1.73	
5/24/55	33.6	30.1	27.2	2.10	2.30	174	----	
Land cleared during winter 4/13/55								
Site 131, Franklin Co., Mass. Merrimac LS/LS (SM)								
7/23/54	10.0	6.3	6.6	0.74	0.55	167	----	
9/11/54	10.7	10.0	7.1	1.17	0.87	184	----	
9/1/54	16.3	14.8	11.1	1.18	1.09	175	----	
9/24/54	15.3	12.6	12.1	1.07	1.09	151	NT	
10/13/54	14.8	12.8	12.1	1.04	1.06	214	----	
4/13/55	16.7	15.8	13....	1.17	1.37	204	1.33*	
5/9/55	32.4	21.1	12.5	2.19	1.84	156	2.58*	
5/24/55	7.9	10.7	10.3	0.49	0.93	181	----	
Area cleared and disturbed before 5/9/55								
Site 1... Franklin Co., Mass. Merrimac LS/S (SM)								
7/23/54	10.5	8.1	7.3	0.74	0.68	297	----	
9/11/54	17.1	14.2	9.6	1.23	1.19	234	----	
9/1/54	17.5	13....	12.1	0.97	1.13	305	----	
9/24/54	13.0	13.7	11.5	1.15	1.15	163	NT	
10/13/54	11.3	13.0	10.4	0.31	1.09	246	----	
4/13/55	12.2	15.4	11.4	0.89	1.29	211	1.64*	
5/9/55	11.1	13.5	12.1	0.86	1.14	199	----	
5/24/55	9.1	9.5	9.5	0.44	0.31	300	----	
Site 1.2, Franklin Co., Mass. Merrimac S/S (SM)								
7/23/54	6.0	5.3	4.0	0.47	0.46	187	----	
9/11/54	10.5	8.6	7.7	0.97	0.83	179	----	
9/1/54	10.0	9.4	7.8	0.72	0.81	153	NT	
9/24/54	11.0	9.6	7.3	0.86	0.83	169	----	
10/13/54	11.4	7.7	9.3	0.79	0.66	159	----	
4/13/55	11.0	9.3	7.8	0.95	0.79	147	1.11*	
5/9/55	11.0	0	7.1	0.76	0.71	150	----	
5/24/55	7.9	9.1	8.6	0.71	0.70	166	----	
Site 134, Franklin Co., Mass. Scarboro SiL/SiL (SM)								
7/23/54	44.1	35.7	32.9	3.73	2.89	170	----	
9/11/54	50.9	40.3	32.8	3.16	3.26	143	----	
9/1/54	48.3	40.6	37.2	2.99	3.29	171	0.33	
9/24/54	49.6	37.2	35.3	3.07	3.01	177	----	
10/13/54	52.9	34.4	34.0	3.26	2.79	158	----	
4/12/55	52.0	48.4	39.8	3.74	3.98	171	0.31	
5/9/55	58.0	33.0	34.0	3.30	2.67	135	0.43	12
5/24/55	50.5	37.7	34.8	3.31	3.05	149	----	13

(Continued)

Note: NT = no test

* Vibrated remolding test

† Measurement of 0- to 6-in. layer.

Table B3b (Continued)

Northeastern Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, In./In.: 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 136, Franklin Co., Mass. Merrimac S/S (SM)								
7/23/54	10.2	7 1	4.5	0 71	0.57	127	----	
8/11/54	13 0	11 6	7.7	1.25	0.94	103	----	
9/1/54	15.7	12.2	10.4	1.10	0 99	118	----	
9/24/54	18.1	11 0	9.5	1.27	0.89	113	NT	
10/13/54	16.8	12 -	10.5	1.18	1.00	137	----	
4/13/55	25 2	22.2	13.0	1.76	1 80	138	1.52*	
5/9/55	17.8	12.1	10.3	1.25	0.98	142	----	
5/24/55	13.4	10.2	8.7	0 94	0.83	96	----	
Site 137, Hillsborough Co., N. H. Walpole SL/SL (SM)								
7/23/54	50.8	49.7	32.2	3.00	4.97	120	----	
8/11/54	50.9	50.9	37.3	3.00	5.09	201	----	
9/2/54	48.2	39.0	31.3	2.94	3.90	214	0.48	
9/24/54	54.2	50.1	36.0	3.00	5.01	211	----	4
10/13/54	49.3	53.0	38.9	2.91	6.30	152	----	
4/13/55	47.4	60.2	34.5	2.80	6.02	184	0.44	
5/10/55	56.9	46.5	30.1	3.36	4.65	156	----	7
5/24/55	60.0	45.1	25.1	3.54	4.51	139	----	12
Bulk dersity and moisture content values questionable								
Site 138, Hillsborough Co., N. H. Merrimac SL/SL (SM)								
7/23/54	28.7	17.1	16.4	1.78	1.18	300	----	
8/11/54	42.3	33.3	23.8	2.62	2.30	192	----	
9/2/54	29 0	27.3	23.3	1.80	1.38	246	----	
9/24/54	31.9	29 8	19.2	1.98	2.06	213	NT**	
10/14/54	30.1	25.9	14.9	1.87	1.79	242	NT**	
4/13/55	35.0	28.0	19.3	2.17	1.93	228	NT**	
5/10/55	30.6	17.9	17.2	1.90	1.24	236	----	
5/24/55	19.2	17.3	15.3	1.19	1.19	289	----	
Site 139, Hillsborough Co., N. H. Rumney LS/S (SM)								
7/23/54	33.9	18.0	18.6	2.96	1.84	300	----	
8/11/54	34.0	22.7	24.3	2.89	2.32	184	----	
9/2/54	32.1	22.4	31.3	2.73	2.28	217	----	
9/24/54	39.4	27.0	26.5	3.35	2.75	197	NT**	
10/14/54	39.8	28.1	33.3	3.38	2.87	233	NT**	
4/13/55	33.6	30.4	32.2	2.86	3.10	173	NT**	6
5/10/55	30.1	27.1	30.8	2.56	2.76	175	----	6
5/24/55	31.6	14.0	22.4	2.69	1.43	186	----	26
All cone index readings erratic because of rocks. Bulk density and moisture content values questionable								
Site 140, Sullivan Co., N. H. Acton SL/SL (ML)								
7/24/54	24.1	21.2	17.2	1.59	1.38	176	----	
8/12/54	26.1	22.0	25.0	1.72	1.43	148	----	
9/2/54	32.7	33.3	25.0	2.16	2.16	181	NT	
9/24/54	31 5	33.3	27.7	2.08	2.16	145	----	
10/14/54	30 2	27.0	20.2	1.99	1.76	197	----	
4/20/55	45 4	58.1	38.9	3.00	3.78	---	----	
5/12/55	32.4	32 2	24.3	2.14	2.09	195	NT	
5/26/55	32.6	29.5	24.6	2.15	1.92	118	----	
Site 141, Sullivan Co., N. H. Sudbury SL/SL (ML)								
7/24/54	46.8	54.6	48.3	2.76	3.11	127	----	
8/12/54	50.9	55.3	46.1	3.00	3.15	132	----	
9/2/54	41.2	54.8	44.9	2.43	3.12	172	0.56	
9/24/54	56.9	65.1	60.4	3.36	3.71	122	----	
10/14/54	49.1	53.7	45.7	2.90	3.06	162	----	
4/20/55	34.1	32.2	33.1	2.01	1.84	Frost	----	
5/12/55	52.8	56.2	58.3	3.12	3.20	146	0.58	6
5/26/55	43.7	52.4	53.8	2.58	2.99	98	----	
Site 142, Sullivan Co., N. H. Colton SL/SL (SM)								
7/24/54	33.7	23.1	23.6	1.75	1 76	251	----	
8/12/54	31.3	23.7	22.7	1.63	1.80	191	----	
9/2/54	34.2	21.7	20.8	1.78	1.65	193	----	
9/24/54	37 0	22.7	27.4	1.92	1.73	140	----	
10/14/54	36.3	24.3	26.7	1.89	1.85	255	0.74†	
4/20/55	49.5	34.3	23 3	2.57	2.61	Frost	----	
5/12/55	34.8	29.1	21.8	1.81	2.25	264	0.76†	
5/26/55	35.5	26.2	24.2	1.85	1.99	181	----	
Site 143, Sullivan Co., N. H. Leicester SiL/SiL (ML)								
7/24/54	41.1	30.4	42.1	2.92	2.68	148	----	
8/12/54	48.7	33.3	45.6	3.06	2.93	136	----	
9/2/54	40.6	29.4	41.8	2.88	2.59	144	0.54	
9/24/54	47.9	34.9	45.6	3.40	3.07	124	----	
10/14/54	37.6	28.8	38.7	2.67	2.53	142	----	
5/12/55	46.9	31.0	44.5	3.33	2.73	140	0.46	
5/26/55	41.6	30.6	44.3	2.95	2.69	116	----	
Site 144, Sullivan Co., N. H. Agawam SiL/Si (ML)								
7/24/54	27.7	28 7	26.6	1.97	2.12	181	----	
8/12/54	27.5	32.1	25.4	1.95	2.38	205	----	
9/-/54	34.6	34.8	30.1	2.46	2.58	211	0.88	
9/24/54	34.6	35.0	29.1	2.46	2.48	173	----	
10/14/54	30.7	30.6	24.7	2.18	2.17	215	----	
4/20/55	35 5	33.7	32.6	2.52	2.49	---	----	
5/12/55	32.1	33.3	27.5	2.28	2.46	214	NT	
5/26/55	29.1	29.4	25.3	2.07	2.18	158	----	
Site 145, Sullivan Co., N. H. Winooski SL/SiL (ML)								
7/24/54	23.5	19.1	20.5	1.72	1.47	281	----	
8/12/54	23.8	18.4	16.7	1.74	1.42	276	----	
9/2/54	29.7	28.3	20.5	2.17	2.18	245	----	
9/24/54	27.9	26.8	24.2	2.04	2.06	215	----	
10/14/54	23.3	21.1	18.7	1.70	1.62	252	NT	
4/20/55			Frozen					
5/12/55	35.2	28.6	30.7	2.57	2.20	186	NT	
5/26/55	31.9	26.6	24.7	2.33	2.05	157	----	
Site 146, Winsor Co., Vt. Buxton SiL/SiL (CL-ML)								
7/24/54	34.6	33.1	33.0	2.63	2.75	204	----	
8/12/54	34.1	30.5	32.7	2.59	2.53	204	----	
9/2/54	37 8	34 2	35 9	2.87	2.84	214	0.34	
9/24/54	35.2	34.1	34.0	2.68	2.83	139	----	
10/14/54	34.1	32.0	35.3	2.59	2.66	202	----	
4/20/55	40 0	37.6	41.7	3.04	3.12	---	----	
5/12/55	40.8	36.4	34.5	3.10	3.02	157	0.43	
5/26/55	36.4	32.6	33.7	2.77	2.71	116	----	
Site 147, Winsor Co., Vt. Buxton L/SiL (ML)								
7/24/54	37.1	31.3	37.6	2.60	2.69	209	----	
8/12/54	27.3	27.7	37.2	1.91	2.38	300	----	
9/2/54	32.0	34.2	39.9	2.24	2.93	209	0.86	
9/24/54	34.4	32.4	38.7	2.41	2.79	216	----	
10/14/54	29.8	29.4	36.5	2.09	2.53	234	----	
4/20/55			Frozen					
5/12/55	33.5	31.1	38.0	2.34	2.67	202	NT	
5/26/55	34.7	28.5	37.9	2.43	2.45	234	----	
Site 148, Winsor Co., Vt. Sudbury SL/SiL (ML)								
7/24/54	42.3	45.5	36.6	2.83	3.69	184	----	
8/12/54	41.7	46.1	41.7	2.79	3.73	164	----	
9/2/54	51.9	43.5	30.9	3.48	3.52	180	----	
9/24/54	50.0	60.7	51.4	3.35	4.92	133	----	
10/14/54	50.6	49.4	36.5	3.39	4.00	188	0.41†	
4/14/55	48.2	36.4	34.1	3.23	2.95	170	0.47	
5/12/55	47.5	44.0	38.1	3.18	3.56	179	0.52	
5/26/55	41.3	37.5	30.0	2.77	3.04	169	NT	
Bulk density and moisture content values questionable								
Site 149, Winsor Co., Vt. Scarboro SL/SL (ML)								
7/24/54	53.9	39.6	37.1	2.80	2.22	175	----	
8/12/54	57.3	37.3	26.7	2.98	2.09	213	----	
9/2/54	54.7	38.9	22.5	2.84	2.18	194	----	
9/24/54	59.1	36.5	26.9	3.07	3.04	126	----	
10/15/54	67.1	34.6	34.0	3.49	1.94	142	0.79†	
5/12/55	70.5	49.1	43.1	3.67	2.75	188	0.44†	
5/26/55	61.9	46.4	34.7	3.22	2.60	173	----	6

(Continued)

Note: NT = no test.

* Vibrated remolding test.

** Penetrometer stopped by stones.

† Measurement of 0- to 6-in. layer.

Table B3b (Concluded)

Northeastern Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis, 0- to 6-in. Depth	Soil Moisture Content, Percent Weight Basis, 6- to 12-in. Depth	Soil Moisture Content, Percent Weight Basis, 12- to 18-in. Depth	Soil Moisture Content, in./6 in., 0- to 6-in. Depth	Soil Moisture Content, in./6 in., 6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 150, Orleans Co., Vt.								
Sheldrake L/SL (CL)								
7/24/54	59.2	70.7	61.3	3.52	3.68	136	----	
8/13/54	51.6	56.9	53.1	3.07	3.36	172	----	
9/2/54	67.9	66.3	58.8	4.03	2.93	177	0.35†	
9/24/54	50.3	54.9	46.5	2.99	3.35	164	----	
10/15/54	63.6	60.8	44.7	3.78	3.16	201	----	
4/14/55	52.1	41.6	35.6	3.09	2.16	176	----	3
5/12/55	65.9	59.3	3.2	3 91	3.11	166	0.60†	24
5/26/55	56.5	70.7	73.1	3.36	3.68	166	----	
Site 151, Saratoga Co., N. Y.								
Hudson SIL/SiL (ML)								
7/25/54	14.2	25.6	20.2	1.05	2.35	300	----	
8/12/54	27.0	24.6	20.1	2.00	2.07	300	----	
9/3/54	41.2	34.8	28.1	3.05	2.92	175	----	
9/25/54	40.9	32.2	26.1	3.03	2.70	193	----	
10/15/54	40.8	32.9	26.5	3.02	2.76	162	0.45	
4/14/55	43.7	31.9	25.4	3.60	2.68	149	0.33	
5/12/55	35.3	33.7	23.1	2.65	2.33	207	----	
5/26/55	32.2	26.8	21.3	2.38	2.25	264	----	
Site 152, Saratoga Co., N. Y.								
Pittsfield SiL/SiCL (CL)								
7/25/54	26.2	19.7	21.2	2.02	1.73	300	----	
8/12/54	27.4	20.3	19.4	2.11	1.79	300	----	
9/3/54	29.2	25.2	22.0	2.35	2.22	300	----	
9/25/54	32.2	25.0	24.3	2.30	2.30	300	----	
10/15/54	25.9	22.0	24.7	1.99	1.94	300	NT	
4/14/55	46.6	28.6	20.1	3.59	2.52	201	0.59	3
5/12/55	42.5	26.3	21.0	3.27	2.31	190	0.71	
5/26/55	33.5	22.5	24.6	2.58	1.98	293	----	
Site 153, Saratoga Co., N. Y.								
Pittsfield L/L (CL)								
7/25/54	7.5	8.3	39.7	0.58	0.77	300	----	
8/12/54	17.6	11.9	10.0	1.37	1.11	300	----	
9/3/54	23.4	17.0	12.3	2.22	1.58	254	----	
9/25/54	30.2	21.8	16.4	2.36	2.03	211	----	
10/15/54	33.6	20.3	15.7	2.62	1.91	232	NT	
4/14/55	34.2	23.6	19.2	2.67	2.19	232	0.66	
5/12/55	24.5	18.6	15.6	1.91	1.73	203	0.71	
5/26/55	22.4	13.9	11.0	1 75	1.29	300	----	
Site 154, Rensselaer Co., N. Y.								
Colonie SL/CL (CL)								
8/12/54	21.7	17.2	20.0	1.77	1.58	121	----	
9/3/54	27.3	22.3	25.6	2.21	2.05	159	NT	
9/25/54	22.7	20.3	21.9	1.84	1.87	147	----	
10/15/54	22.3	18.1	22.8	1.81	1.67	173	----	
11/4/54	23.2	23.1	26.1	1.88	2.13	120	----	
4/14/55	26.5	24.8	25.3	2 15	2.23	140	0.36	
5/12/55	23.4	17.6	22.6	1.90	1.62	170	0.65	
5/26/55	22.5	17.6	22.3	1.82	1.62	128	----	
Site 155, Rensselaer Co., N. Y.								
Swanton L/SL (CL)								
8/12/54	17.0	15.2	14.3	1.31	1.45	240	----	
9/3/54	19.8	16.4	18.0	1.69	1.51	238	----	
9/25/54	17.9	16.0	15.9	1.35	1.47	265	----	
10/15/54	19.7	15.7	15.7	1.52	1.44	227	----	
11/4/54	21.7	19.0	18.3	1.67	1.75	227	NT	
4/14/55	23.1	18.8	18.5	1.78	1.73	177	1.71*	
5/12/55	22.0	16.9	19.0	1.69	1.55	308	----	
5/26/55	18.2	14.9	15.3	1.40	1.37	194	----	
Site 156, Rensselaer Co., N. Y.								
Atherton SiL/L (ML)								
8/12/54	41.7	36.5	23.3	3.88	2.46	146	----	
9/3/54	44.3	30.0	23.5	3.06	2.79	170	0 58	
9/25/54	43.7	29.2	25.4	3.02	2.72	157	----	
10/15/54	43.9	34.9	23.3	3.03	2.25	157	----	
11/4/54	47.5	32.4	25 2	3.28	2.01	139	----	
4/14/55	57.5	40.0	25.4	3.97	3 72	129	0.46	
5/12/55	52.0	32 2	27.0	3.59	2.99	120	----	
5/26/55	48.9	31.6	24.5	3.37	2 94	117	----	
Site 158, Schenectady Co., N. Y.								
Albia L/SL (CL-ML)								
8/13/54	17.0	12.1	9.3	1.12	1.05	288	----	
9/3/54	27.2	21.0	17.5	1.80	1.83	231	----	
9/25/54	24.8	18.6	16.4	1.64	1.62	250	----	
10/15/54	23.7	17.2	12.1	1.56	1.50	274	----	
11/4/54	26.2	22.1	18.7	1.73	1.92	192	0.56	
4/14/55	27.0	23.3	20.0	1.78	2.03	147	0.38	
5/12/55	23.1	20.1	18.0	1.85	1.75	205	----	
5/27/55	25.3	17.1	16.3	1.67	1.49	208	----	

Bulk density and moisture content values questionable

Sample Date	Soil Moisture Content, Percent Weight Basis, 0- to 6-in. Depth	Soil Moisture Content, Percent Weight Basis, 6- to 12-in. Depth	Soil Moisture Content, Percent Weight Basis, 12- to 18-in. Depth	Soil Moisture Content, in./6 in., 0- to 6-in. Depth	Soil Moisture Content, in./6 in., 6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 70, Monroe Co., N. Y.								
Brockport SiL/L (CL)								
7/6/54	27.6	14.1	15.0	3.04	1.28	300	----	
7/20/54	18.3	12 8	15.6	1.14	1.16	300	----	
9/10/54	18.1	16.8	10.6	2.03	1.53	300	----	
10/21/54	32.4	24 2	23.9	2 40	2 30	232	----	
11/5/54	31 1	24.2	23.9	2.50	2.20	179	0.39†	
4/4/55	29.2	23.4	24.3	2.75	2.49	152	0.81	2
4/21/55	30.7	25.3	23.5	2.72	2.30	102	---	8
5/18/55	17.6	-	20.7	1.30	1.47	300	NT	

Note NT = no test.

* Vibrated remolding test.

† Measurement of 0- to 6-in. layer.

Table B3c

Soil Moisture Content and Strength Data of Survey Sites

Lake States Region

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, in. & in.: 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 1, Marathon Co., Wis. Glouster SiL/SiL (CL-ML)								
5/24/54	36.7	31.0	28.3	2.77	2.60	283	----	
7/14/54	13.1	14.0	15.8	1.06	1.18	300	----	
8/3/54	14.0	10.2	17.2	1.13	0.86	300	----	
8/31/54	10.2	5.4	10.4	0.83	0.45	300	----	
10/11/54	27.2	20.6	22.5	2.20	1.73	271	0.60	
4/11/55	27.4	19.3	17.3	2.21	1.62	267	0.72	
4/27/55	26.3	20.2	20.6	2.13	1.70	283	NT	
5/23/55	11.0	12.6	15.6	0.89	1.06	300	NT	
Site 2, Marathon Co., Wis. Plainfield LS/S (SM)								
5/28/54	42.3	29.6	25.2	3.32	2.76	125	----	
7/13/54	9.8	7.1	9.1	0.77	0.66	300	----	
8/3/54	7.7	7.4	6.5	0.60	0.69	215	----	
8/31/54	11.8	6.0	6.7	0.93	0.64	238	----	
10/11/54	19.3	13.0	10.3	1.52	1.03	202	NT	
4/11/55	24.5	20.4	25.5	1.93	1.71	134	1.22*	
4/27/55	22.9	19.7	23.0	1.80	1.65	165	1.94*	
5/23/55	16.2	9.0	9.6	1.27	0.76	188	----	
Site 3, Portage Co., Wis. Waukesha LS/S (SM)								
5/28/54	23.8	12.5	13.3	1.73	1.57	144	----	
7/13/54	7.6	5.5	4.1	0.55	0.44	210	----	
8/3/54	14.3	6.6	5.8	1.04	0.53	207	----	
8/31/54	11.7	6.7	5.7	0.85	0.54	163	----	
10/11/54	16.3	9.7	9.2	1.18	0.78	155	NT	
4/11/55	14.5	8.4	7.4	1.05	0.68	151	NT*	
4/27/55	15.8	8.7	7.5	1.15	0.70	155	2.40*	
5/23/55	5.0	4.4	4.7	0.48	0.35	204	----	
Site 4, Portage Co., Wis. Genesee L/SL (CL)								
5/28/54	31.7	25.1	22.5	2.57	2.35	265	----	
7/13/54	8.5	9.6	8.8	0.69	0.80	300	----	
8/3/54	10.2	9.1	8.5	0.83	0.76	291	----	
8/31/54	11.2	9.5	7.7	0.91	0.89	204	----	
10/11/54	14.9	11.0	10.5	1.21	1.03	219	NT	
4/11/55	16.9	10.9	13.6	1.37	1.02	150	NT*	
4/27/55	13.8	9.9	10.3	1.12	0.93	170	NT*	
5/23/55	5.9	8.6	7.7	0.48	0.80	184	----	
Site 5, Portage Co., Wis. Genesee LS/S (SM)								
5/28/54	24.8	19.5	16.6	1.80	1.73	213	----	
7/13/54	16.0	16.4	12.8	1.16	1.46	238	----	
8/3/54	15.5	11.7	12.6	1.36	1.04	261	----	
8/31/54	20.6	18.1	14.7	1.50	1.61	153	----	
10/11/54	25.4	20.3	14.2	1.84	1.80	139	0.74	
4/11/55	25.8	19.6	15.1	1.87	1.74	180	0.78	
4/27/55	26.1	17.8	12.7	1.89	1.58	155	0.79	
5/23/55	12.9	13.8	10.2	0.94	1.23	300	----	
Site 6, Waushara Co., Wis. Waukesha LS/LS (SM)								
6/14/54	5.3	3.2	4.1	0.47	0.31	263	----	
7/19/54	4.3	3.3	3.8	0.38	0.32	300	----	
8/3/54	6.5	2.3	2.2	0.58	0.23	300	----	
8/31/54	7.0	5.2	2.5	0.62	0.51	300	----	
10/12/54	13.3	10.1	7.6	1.22	0.99	205	NT	
4/11/55	20.6	15.2	Frost	1.50	1.41	273	1.30>	
4/27/55	3.0	10.7	10.5	0.58	0.95	217	1.26*	
5/23/55	4.2	4.8	4.8	0.30	0.43	300	----	
Site 7, Waushara Co., Wis. Coloma LS/LS (SM)								
6/14/54	7.2	5.8	5.7	0.38	0.54	114	----	
7/19/54	5.0	4.4	4.1	0.48	0.41	187	----	
8/3/54	6.6	4.3	4.4	0.53	0.40	261	----	
8/31/54	3.9	4.0	3.0	0.31	0.37	255	----	
10/12/54	14.1	8.9	9.0	1.13	0.83	72	NT	
4/11/55	14.0	11.3	9.1	1.12	1.05	137	1.93*	
4/27/55	12.2	8.0	7.8	0.98	0.74	117	1.69*	
5/23/55	5.3	4.6	5.5	0.51	0.43	129	----	
Site 8, Waushara Co., Wis. Coloma LS/LS (SM)								
6/14/54	7.0	5.3	6.0	0.66	0.47	183	----	
7/19/54	7.5	5.9	5.2	0.55	0.52	210	----	
8/3/54	7.4	6.1	3.5	0.55	0.54	271	----	
8/31/54	6.3	4.2	3.0	0.65	0.37	276	----	
10/12/54	13.4	10.1	11.4	1.42	0.95	210	NT	
4/12/55	15.1	9.7	8.9	1.40	0.86	153	1.94*	
4/27/55	16.3	9.5	7.3	1.43	0.75	135	2.01*	
5/23/55	7.0	5.3	5.3	0.51	0.49	140	----	
Site 9, Waushara Co., Wis. Waukesha LS/S (SM)								
6/14/54	4.2	5.3	4.2	0.34	0.50	300	----	
7/19/54	4.9	6.0	3.0	0.39	0.56	300	----	
8/3/54	5.2	6.6	5.3	0.65	0.62	300	----	
8/31/54	6.3	5.5	4.2	0.54	0.52	300	----	
10/12/54	13.9	10.4	10.3	1.11	0.98	180	NT	
4/12/55	13.3	8.5	7.3	1.06	0.84	165	NT*	
4/27/55	9.4	9.2	8.3	0.78	0.87	132	1.44*	
5/23/55	2.7	2.6	3.7	0.22	0.24	300	----	
Site 10, Columbia Co., Wis. Miami LS/LS (SM)								
6/15/54	3.1	6.2	7.0	0.27	0.58	300	----	
7/20/54	3.8	6.2	6.8	0.34	0.58	300	----	
8/3/54	10.0	11.7	13.8	0.88	1.10	300	----	
9/1/54	10.2	[illegible]	12.0	0.90	0.88	300	----	
10/12/54	14.3	14.8	14.5	1.31	1.40	232	NT	
4/12/55	14.6	13.9	14.6	1.30	1.30	201	NT*	
4/28/55	9.7	12.0	14.6	0.86	1.13	250	1.36*	
5/24/55	10.2	7.2	8.5	0.90	0.68	300	----	
Site 11, Columbia Co., Wis. Miami SiL/SiL (CL-ML)								
6/15/54	16.3	13.2	17.0	0.11	1.08	300	----	
7/20/54	16.1	13.2	13.2	0.74	1.14	300	----	
8/3/54	14.2	14.5	14.3	1.10	1.19	300	----	
9/1/54	14.7	11.5	13.6	0.86	0.97	300	----	
10/12/54	24.0	22.6	21.2	1.92	1.86	211	0.82	
4/12/55	27.1	21.9	22.9	2.00	1.80	161	0.68	
4/28/55	27.5	23.2	23.2	2.03	1.90	183	0.86	
5/24/55	22.1	21.5	20.5	1.63	1.77	272	----	
lowed after 4/12/55								
Site 12, Columbia Co., Wis. Miami SL/L (CL-ML)								
6/15/54	17.8	15.2	15.6	1.56	1.35	146	----	
7/20/54	13.8	12.7	14.5	1.04	1.13	160	----	
8/3/54	14.3	16.0	17.4	1.31	1.43	113	----	
9/1/54	17.7	14.3	15.6	1.35	1.27	138	----	
10/12/54	22.6	17.9	20.1	1.72	1.56	95	0.55	
4/12/55	23.8	16.8	16.6	1.81	1.49	93	0.50	
4/28/55	24.4	17.7	18.5	1.86	1.57	100	0.66	
5/24/55	18.9	12.0	13.3	1.43	1.07	130	----	
Site 13, Columbia Co., Wis. Carrington L/L (CL-ML)								
6/15/54	10.3	12.7	15.0	0.34	1.14	300	----	
7/20/54	11.2	13.0	15.1	0.37	1.16	300	----	
8/3/54	17.7	16.4	17.5	1.53	1.47	210	----	
9/2/54	15.2	16.1	17.3	1.31	1.44	300	----	
10/12/54	14.1	17.3	----	1.65	1.52	130	0.63	
4/12/55	13.5	16.2	15.0	1.61	1.51	125	0.35	
4/28/55	17.5	16.3	14.2	1.46	1.46	156	0.59	
5/24/55	14.4	16.2	15.1	1.58	1.61	144	----	
Site 14, Columbia Co., Wis. Carrington SiL/SiL (CL)								
6/15/54	27.5	26.8	24.0	2.01	1.74	300	----	
7/20/54	24.2	23.0	28.3	1.77	1.78	300	----	
8/3/54	25.3	31.1	31.1	1.85	2.02	300	----	
9/2/54	23.2	28.8	29.6	1.70	1.73	300	----	
10/12/54	-- -	33.3	32.6	----	2.16	186	0.80	
4/12/55	32.7	34.0	33.3	2.32	2.20	157	0.75	
4/28/55	27.5	35.1	32.7	2.02	2.27	135	0.72	
5/24/55	30.7	31.1	27.7	2.25	2.06	184	----	

(Continued)

Note: NT = no test.

* Vibrated remolding test.

Table B3c (Continued)

Lake States Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Inches of Water: 0- to 6-in. Depth	6- to 12-in. Depth	Core Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 15, Dane Co., Wis. Jones/ille SiL/SiL (CL)								
6/15/54	17.0	12.6	16.4	0.84	1.03	300	----	
7/20/54	15.9	10.1	11.2	0.68	0.82	300	----	
8/10/54	11.1	11.3	9.7	1.32	0.90	300	----	
9/7/54	11.9	9.1	9.2	1.00	0.75	300	----	
10/12/54	28.4	23.4	26.3	2.00	1.91	176	0.72	
4/12/55	28.1	27.7	----	2.02	2.24	184	0.71	
4/28/55	28.9	25.3	27.7	1.77	2.06	184	0.70	
5/24/55	14.3	13.1	22.3	1.53	1.36	300	----	
Site 17, Dane Co., Wis. Afton LS/LS (SM)								
6/15/54	2.4	3.7	7.3	0.23	0.34	300	----	
7/20/54	2.4	3.0	4.0	0.23	0.23	300	----	
8/10/54	2.7	5.1	5.5	0.26	0.47	300	----	
9/7/54	3.4	5.6	5.6	0.33	0.51	300	----	
10/12/54	10.0	9.2	8.7	0.97	0.82	291	NT	
4/12/55	7.7	5.1	4.3	0.75	0.47	294	NT*	
4/28/55	3.3	5.0	7.3	0.32	0.73	243	1.27*	
5/24/55	12.3	6.7	4.2	1.20	0.62	NR	----	
Site 18, Winnebago Co., Ill. O'Neill SiL/SiL (ML)								
6/15/54	17.4	22.0	19.3	1.32	1.66	202	----	
7/20/54	19.4	24.6	28.7	1.47	1.86	256	----	
8/10/54	19.1	23.1	24.3	1.44	1.75	300	----	
9/8/54	16.5	19.4	22.1	1.23	1.47	300	----	
10/13/54	28.0	32.6	31.5	2.12	2.46	191	0.87	
4/29/55	40.2	30.4	30.3	3.04	2.30	203	0.91	
4/28/55	25.9	27.3	29.5	1.96	2.06	196	0.93	
5/24/55	25.9	25.0	27.5	1.96	1.89	210	----	
Site 19, Winnebago Co., Ill. O'Neill SiL/SiL (CL)								
6/15/54	13.9	13.3	19.5	1.26	1.42	264	----	
7/20/54	20.4	20.2	19.6	1.43	1.45	300	----	
8/10/54	17.3	15.3	16.0	1.15	1.10	300	----	
9/8/54	16.4	14.1	13.7	1.02	1.06	300	----	
10/13/54	33.1	27.6	27.0	1.94	1.99	137	0.85	
4/29/55	31.4	26.9	24.9	2.18	1.93	225	0.99	
4/28/55	27.0	27.1	23.7	1.86	1.95	260	NT	
5/25/55	14.3	14.3	14.1	1.32	1.07	300	----	
Site 20, Winnebago Co., Ill. Onarga SL/SL (CL-ML)								
6/16/54	9.1	12.7	17.2	0.62	1.13	300	----	
7/20/54	11.4	14.3	17.4	0.78	1.37	300	----	
8/10/54	13.7	10.3	12.9	0.94	0.91	300	----	
9/8/54	10.8	11.6	12.0	0.74	1.03	300	----	
10/13/54	20.4	21.2	23.9	1.40	1.38	174	0.70	
4/29/55	No samples, frozen, 14 in. to 15 in.							
4/28/55	19.3	19.8	22.7	1.32	1.76	202	NT	
5/25/55	17.5	14.2	18.3	1.20	1.26	300	----	
Site 22, Winnebago Co., Ill. Miami SiL SiL (CL-ML)								
6/16/54	18.4	17.9	18.0	1.35	1.31	300	----	
7/20/54	15.5	14.5	16.4	1.13	1.06	300	----	
8/10/54	14.5	11.3	14.3	1.06	0.86	300	----	
9/7/54	16.4	12.7	13.0	1.20	0.93	300	----	
10/13/54	31.2	24.0	24.3	2.23	1.76	274	0.66	
4/29/55	32.6	23.4	22.4	2.33	1.71	300	0.72	
4/28/55	32.5	23.2	23.0	2.03	1.70	254	0.75	
5/25/55	18.3	13.1	13.2	1.30	1.02	300	----	
Site 23, Ogle Co., Ill. Muscutine SiL/SiL (CL)								
6/16/54	17.5	18.4	19.2	1.36	1.45	300	----	
7/20/54	14.1	13.5	13.1	1.10	1.06	300	----	
8/10/54	18.6	13.6	13.0	1.45	1.06	300	----	
9/8/54	19.3	19.2	20.2	1.50	1.51	300	----	
10/12/54	27.3	26.2	25.5	2.14	2.06	192	0.86	
4/29/55	33.0	27.1	27.6	2.57	2.13	197	0.80	
4/28/55	29.4	27.2	26.4	2.29	2.14	193	0.74	
5/25/55	26.8	21.0	22.7	2.09	1.70	288	----	
Grazed over before 4/29/55								
Site 24, Ogle Co., Ill. Sable SiL/SiL (CL)								
6/15/54	30.7	27.9	32.2	1.95	2.24	156	----	
7/20/54	22.2	24.5	22.8	1.45	1.98	119	----	
8/10/54	26.3	20.2	19.0	1.75	1.62	268	----	
9/8/54	29.2	31.5	26.7	1.71	2.53	124	----	
10/13/54	36.4	33.8	31.2	2.33	2.72	118	0.93	
4/29/55	34.3	31.0	28.4	2.24	2.49	151	0.88	
4/28/55	30.1	30.6	28.5	2.02	2.46	151	0.94	
5/25/55	21.1	24.2	22.4	1.38	1.95	221	----	
Site 25, Lee Co., Ill. Sable SiL/SiL (ML)								
6/16/54	24.0	28.8	29.1	1.73	2.03	206	----	
7/20/54	24.4	25.0	23.1	1.76	1.77	300	----	
8/10/54	18.4	18.0	20.6	1.32	1.34	300	----	
9/8/54	26.5	31.4	31.0	1.91	2.22	230	----	
10/13/54	38.8	38.7	35.4	2.79	2.74	134	0.90	
4/29/55	31.4	33.1	32.4	2.26	2.34	156	0.79	
4/28/55	30.5	30.7	30.1	2.20	2.17	138	0.86	
5/25/55	24.3	20.5	23.4	1.76	1.45	300	----	
Plowed after 4/29/55								
Site 26, Lee Co., Ill. Tama SiL/SiL (ML)								
6/16/54	33.2	33.9	31.8	2.49	2.44	155	----	
7/20/54	23.5	26.2	26.5	1.49	1.89	300	----	
8/10/54	24.3	20.9	21.9	1.54	1.50	300	----	
9/8/54	29.2	30.7	31.0	1.86	2.21	134	----	
10/13/54	38.4	38.6	43.1	2.44	2.73	126	0.66	
4/29/55	48.0	38.5	37.3	3.05	2.77	130	0.70	
4/28/55	44.4	38.1	35.5	2.85	2.74	130	0.70	
5/25/55	26.2	25.0	26.1	1.67	1.80	238	----	
Site 27, Bureau Co., Ill. Huntsville SL/SiL (CL-ML)								
6/15/54	9.6	14.3	24.5	0.83	1.42	300	----	
7/21/54	21.5	21.1	21.6	1.50	2.08	232	----	
8/10/54	14.9	16.4	21.3	1.38	1.61	Rocks	----	
9/8/54	18.4	17.1	20.6	1.70	1.68	300	----	
10/14/54	25.0	19.4	21.9	2.31	1.41	133	1.00	
4/30/55	15.7	17.1	21.1	1.45	1.65	224	NT	
4/29/55	10.7	9.1	15.2	0.99	0.70	300	NT*	
5/25/55	14.4	13.1	18.5	1.33	1.78	246	----	
Site 28, Henry Co., Ill. Harpster SiL/SiL (ML)								
6/16/54	28.2	26.9	23.0	1.94	2.10	140	----	
7/21/54	37.3	18.4	18.9	2.57	1.34	259	----	
8/11/54	34.0	34.1	31.7	2.35	2.50	138	----	
9/9/54	26.9	29.5	30.3	1.86	2.14	170	----	
10/14/54	36.3	34.9	35.3	2.50	2.53	117	0.89	
4/30/55	33.9	33.9	32.5	2.34	2.46	135	0.68	
4/29/55	34.7	34.0	33.8	2.39	2.47	132	0.64	
5/25/55	8.2	21.4	25.5	1.33	1.82	273	----	
Site 29, Henry Co., Ill. Hartsburg SiL/SiL (CL)								
6/17/54	13.8	16.6	20.7	1.13	1.49	300	----	
7/21/54	16.2	16.3	13.2	1.32	1.47	300	----	
8/11/54	13.8	10.3	10.3	1.13	0.93	219	----	
9/9/54	15.3	13.5	13.0	1.30	1.76	300	----	
10/14/54	29.0	23.0	25.8	2.37	2.07	151	0.90	
4/30/55	21.6	19.8	21.0	1.76	1.73	130	0.76	
4/29/55	23.1	23.5	25.5	2.37	2.12	120	0.90	
5/25/55	11.6	14.5	17.5	0.95	1.30	300	----	

(Continued)

Note: NT = no test.
* Vibrated remolding test.

Table B3c (Continued)

Lake States Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, in./6 in.: 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 30, Henry Co., Ill. Hagener LS/LS (SM)								
6/17/54	3.8	3.7	5.0	0.35	0.35	300	----	
7/21/54	13.6	9.1	8.4	1.24	0.87	281	----	
8/11/54	26.2	22.6	15.5	2.39	2.16	291	----	
9/9/54	6.4	6.0	7.6	0.56	0.57	300	----	
10/14/54	12.9	8.9	9.5	1.13	0.84	250	NT	
3/30/55	11.6	9.9	11.4	1.06	0.94	269	1.37*	
4/29/55	11.1	9.2	8.4	1.01	0.78	278	1.52*	
5/25/55	6.0	4.1	4.9	0.62	0.39	275	----	
Site 31, Jackson Co., Iowa Muscatine SiL/SiL (CL)								
6/17/54	28.4	24.6	27.1	2.66	2.04	181	----	
7/21/54	28.4	19.7	22.2	2.66	1.63	277	----	
8/11/54	23.7	17.0	19.0	2.16	1.48	333	----	
9/10/54	14.7	23.8	9.0	1.07	1.97	183	----	
10/14/54	31.2	25.5	29.2	2.26	2.11	165	0.46	
3/31/55	Soil frozen							
4/25/55	34.5	27.3	26.3	2.50	2.26	168	0.42	
5/25/55	30.3	24.4	26.7	2.19	2.02	199	----	
Site 32, Jackson Co., Iowa Clinton SiL/SiL (CL)								
6/17/54	22.8	21.8	19.2	1.80	1.69	219	----	
7/21/54	19.8	9.9	12.8	1.57	0.77	300	----	
8/11/54	17.5	13.6	13.1	1.39	0.79	300	----	
9/10/54	19.6	15.7	17.0	1.55	1.22	300	----	
10/14/54	28.2	29.6	23.4	2.23	1.98	114	0.34	
3/31/55	27.9	28.9	22.3	2.21	2.24	257	0.62	
4/29/55	28.2	27.0	24.2	2.23	2.09	204	0.68	
5/25/55	20.9	15.2	16.7	1.66	1.18	293	----	
Site 35, Jackson Co., Iowa Genesee SiL/SiL (CL)								
6/17/54	26.2	26.3	24.8	2.20	2.27	300	----	
7/21/54	19.8	20.7	22.9	1.66	1.79	300	----	
8/11/54	19.2	21.7	23.0	1.61	1.87	300	----	
9/10/54	25.8	25.9	26.8	2.17	2.24	300	----	
10/15/54	31.6	28.2	29.7	2.65	2.44	164	0.78	
3/30/55	26.7	30.1	28.4	2.24	2.60	161	0.67	
4/30/55	28.1	29.8	28.4	2.41	2.57	187	NT	
5/25/55	23.5	24.6	24.6	1.97	2.12	300	----	
Site 36, Jackson Co., Iowa Jackson SL/SL (SM)								
6/17/54	9.7	7.8	8.5	0.84	0.75	300	----	
7/21/54	12.9	5.4	7.0	1.12	0.52	300	----	
8/11/54	9.0	8.5	6.2	0.78	0.82	300	----	
9/10/54	16.5	8.9	9.3	1.44	0.86	300	----	
10/15/54	16.6	13.0	11.8	1.44	1.25	198	0.79	
3/30/55	13.9	12.9	11.3	1.21	1.24	211	NT	
4/30/55	11.8	11.5	10.1	1.03	1.04	264	NT	
5/25/55	5.2	6.4	7.3	0.45	0.61	300	----	
Site 37, Jackson Co., Iowa Clinton SiL/SiCL (CL)								
6/17/54	23.1	34.6	41.8	1.86	2.78	300	----	
7/21/54	26.6	27.4	35.7	2.14	2.20	300	----	
8/11/54	21.0	25.6	30.1	1.69	2.06	300	----	
9/10/54	26.6	36.8	45.3	2.14	2.96	300	----	
10/15/54	32.2	39.3	39.4	2.53	2.36	177	0.92	
3/30/55	36.0	44.1	44.4	2.89	3.30	111	0.78	
4/30/55	26.6	34.5	43.7	2.14	2.77	144	0.84	
5/25/55	17.3	24.8	3.1	1.39	1.99	150	----	
Plowed before 3/30/55								
Site 38, Grant Co., Wis. Fayette SiL/SiL (CL)								
6/18/54	19.4	21.3	24.2	1.61	1.53	300	----	
7/22/54	18.4	19.5	22.6	1.52	1.40	300	----	
8/11/54	11.8	13.3	19.2	0.98	0.96	300	----	
9/10/54	16.7	14.0	16.2	1.38	1.01	300	----	
10/15/54	27.5	28.5	27.5	2.28	2.05	160	0.78	
4/13/55	28.7	28.8	29.0	2.38	2.07	107	0.72	
4/30/55	27.7	28.5	27.3	2.29	2.05	147	0.76	
5/26/55	17.1	19.2	22.0	1.42	1.38	300	----	
Site 39, Grant Co., Wis. Dubuque SiL/SiL (CL)								
6/18/54	23.6	22.9	21.3	1.90	1.85	260	----	
7/22/54	15.6	19.4	21.3	1.25	1.57	300	----	
8/11/54	8.8	13.7	16.1	0.71	1.11	300	----	
9/10/54	14.4	12.1	14.1	1.56	0.98	300	----	
10/15/54	27.1	28.7	24.8	2.18	2.32	168	0.82	
4/13/55	27.8	25.0	24.6	2.24	2.03	121	0.90	
4/30/55	27.2	24.9	24.1	2.19	2.02	157	0.72	
5/26/66	22.5	21.9	22.5	1.81	1.77	216	----	
Plowed and disked after 4/13/55, planted after 4/30/55								
Site 40, Grant Co., Wis. Dodgeville SiL/SiL (CL)								
6/18/54	23.3	21.8	22.2	1.86	1.48	266	----	
7/22/54	17.1	20.0	22.2	1.36	1.36	300	----	
8/12/54	14.0	17.7	20.1	1.12	1.20	300	----	
9/10/54	17.6	15.9	18.1	1.40	1.07	300	----	
10/15/54	27.1	26.7	26.8	2.16	1.82	166	0.86	
4/13/55	28.1	27.8	28.3	2.00	1.89	155	0.84	
4/30/55	28.1	24.4	24.3	1.92	1.65	182	0.88	
5/26/55	25.3	26.0	24.7	2.02	1.77	155	----	
Plowed before 4/13/55								
Site 41, Vernon Co., Wis. Clinton SiL/SiL (CL)								
6/18/54	21.3	17.0	25.8	1.72	1.31	294	----	
7/22/54	22.5	25.0	28.4	1.82	1.94	300	----	
8/11/54	20.1	22.0	29.3	1.63	1.70	300	----	
9/11/54	20.8	25.7	27.5	1.68	2.13	224	----	
10/15/54	32.0	30.4	36.6	2.59	2.46	127	0.78	
4/12/55	30.2	29.9	31.9	2.61	2.42	166	0.80	
4/30/55	26.9	26.4	29.7	2.18	2.14	211	NT	
5/26/55	32.0	28.9	31.6	2.59	2.34	151	----	
Site 42, Vernon Co., Wis. Tama SiL/SiL (CL)								
6/18/54	25.2	24.0	23.7	1.95	1.86	300	----	
7/22/54	23.2	24.3	24.1	1.80	1.88	300	----	
8/12/54	19.6	18.5	19.9	1.52	1.43	300	----	
9/11/54	27.8	19.3	17.5	2.15	1.49	300	----	
10/15/54	33.3	29.9	29.4	2.58	2.31	188	0.66	
Site graded								
Site 43, Vernon Co., Wis. Dubuque SiL/SiL (CL)								
6/18/54	20.7	19.2	20.2	1.50	1.40	307	----	
7/22/54	20.8	22.2	21.5	1.52	1.52	300	----	
8/12/54	17.6	13.8	18.5	0.96	1.01	300	----	
9/11/54	20.2	15.9	18.1	1.54	1.16	300	----	
10/15/54	31.0	31.3	26.6	2.36	2.25	201	0.73	
4/13/55	31.0	30.5	25.3	2.47	2.39	203	0.34	
4/30/55	27.6	25.2	23.0	2.14	1.95	300	NT	
5/26/55	22.7	21.7	20.9	1.76	1.68	300	----	
Site 44, Jackson Co., Wis. Boone S/S (SM)								
6/19/54	15.5	9.5	8.9	1.15	0.87	72	----	
7/22/54	6.3	5.3	6.1	0.48	0.48	102	----	
8/12/54	6.7	4.8	3.0	0.90	0.44	118	----	
9/11/54	9.8	6.4	4.3	0.72	0.58	82	----	
10/16/54	11.0	8.2	6.7	0.82	0.75	84	NT	
4/14/55	15.3	9.6	8.7	1.14	0.88	88	1.61*	
4/30/55	9.7	5.5	5.6	0.72	0.59	119	2.03*	
5/26/55	12.1	6.7	6.6	0.90	0.61	90	----	
Site 45, Jackson Co., Wis. Plainfield LS/S (SM)								
6/19/54	14.5	8.3	8.7	1.25	0.75	103	----	
7/22/54	5.7	5.5	4.5	0.69	0.50	300	----	
8/12/54	6.3	4.0	3.0	0.84	0.38	201	----	
9/11/54	8.0	5.7	5.5	0.69	0.52	169	----	
10/16/54	7.4	6.7	11.6	0.64	0.61	127	NT	
4/24/55	10.5	7.6	7.6	0.91	0.69	129	1.79*	
4/30/55	9.5	6.0	5.9	0.82	0.54	138	1.56*	
5/26/55	5.0	5.2	5.7	0.78	0.47	127	----	

(Continued)

Note: NT = no test.
* Vibrated remolding test.

Table B3c (Continued)

Lake States Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, in. 6 in.: 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in Depth	Depth to Water Table in.
Site 46, Jackson Co., Wis. Union Sil/SiL (CL-ML)								
6/13/54	32.9	26.2	26.8	2.55	2.18	157	----	
7/22/54	15.3	19.2	21.7	1.18	1.60	300	----	
8/12/54	11.2	12.7	13.4	0.87	1.06	300	----	
9/11/54	24.3	20.6	13.4	1.92	1.72	300	----	
10/16/54	31.4	24.0	24.3	2.43	2.00	195	0.64	
4/14/55	33.6	23.1	26.3	2.60	2.34	85	0.67	
4/30/55	26 6	21.3	24.4	2.06	1.78	273	NT	
5/26/55	24.4	16.6	20.2	1.89	1.38	264	----	
Site 47, Jackson Co., Wis. Boone SL/SL (SM)								
6/19/54	21.0	19.3	17.3	1.94	1.81	87	----	
7/22/54	10.6	10.8	12.3	0.98	1.02	285	----	
8/12/54	7.6	8.2	9.3	0.70	0 78	300	----	
9/11/54	16.0	13.7	11.3	1.48	1 30	188	----	
10/16/54	17.0	14.9	15.2	1.57	1.41	125	0.66	
4/14/55	19.0	15.9	16.0	1.76	1.51	101	0.54	
4/30/55	10.7	12.5	11.3	0.99	1.19	209	NT	
5/26/55	16.5	12.1	8.4	1.52	1.15	259	----	
Site 48, Jackson Co., Wis. Boone Sil/SiL (CL-ML)								
6 19/54	29.8	31.6	34.1	2.48	2 41	152	----	
7/22/54	18.4	24.3	26.0	1.53	1.85	300	----	
8/12/54	17.9	20.1	21.1	1.49	1 53	300	----	
9/11/54	23.0	24 0	25.2	1.92	1.83	278	----	
10/16/54	18.8	27.2	30.0	1.57	2.07	197	0.77	
4/14/55	24.6	32.5	11.0	2.05	2.48	122	0.73	
4/30/55	17 0	27.7	28.6	1.42	2 11	207	NT	
5/26/55	13.6	25.7	27.9	1.55	1.96	223	----	
Site 49, Jackson Co., Wis. Vesper SL/SL (ML)								
6/19/54	21.7	16.9	14.1	1.78	1.46	206	----	
7/22/54	10.9	14.4	14.0	0.90	1.20	187	----	
8/12/54	6.9	7.5	8.2	0.57	0.66	300	----	
9/11/54	15.9	11.7	9.7	1.36	1.02	300	----	
10/16/54	20.5	18.8	17.1	1.68	1.65	152	0.50	
4/14/55	24.1	19.2	14.7	1.98	1.58	144	0.58	
4/30/55	18.5	14.9	14.1	1.52	1.31	242	NT	
5/26/55	14.6	13.4	21.2	1.20	1.7	274	----	
Site 50, Jackson Co., Wis. Union Sil/SiL (CL-ML)								
6/19/54	30.7	23 9	21.5	2.52	2.05	137	----	
7/22/54	13.0	17.9	19.2	1.12	1.54	300	----	
8/12/54	6.4	11.3	17.3	0.[illegible]	0.97	300	----	
9/11/54	20.0	14.2	17.3	1.64	1.[illegible]	300	----	
10/16/54	28.2	21.7	21.6	2.32	1.8[illegible]	204	0.73	
4/14/55	29.7	22.3	21.1	2.[illegible]	1.91	174	0.36	
4/30/55	23.2	18.3	19.2	1.91	1.57	27[illegible]	----	
5/26/55	20.5	14.7	17.3	1.69	1.26	300	----	
Site 51, Marathon Co., Wis. Spencer Sil/SiL (ML)								
6/20/54	33.1	28.3	28.1	2.22	2.08	266	----	
7/23/54	30.6	27.3	19.8	2.06	2.00	300	----	
8/13/54	20.3	20.8	18.[illegible]	1.36	1.52	300	----	
10/16/54	38.4	32.3	29.1	2.58	2.36	182	0.52	
4/15/55	39.7	30.0	26.7	2.67	2.20	187	0.58	
5/1/55	34.8	31.4	23.9	2.34	2.30	234	0.77	
5/26/55	33.3	24.0	23.6	2.2[illegible]	1.76	300	----	
Site 52, Marathon Co., Wis. Spencer Sil/SiL (CL)								
6/20/54	Heavy rains flooded					71	----	
7/23/54	33.6	30.8	27.4	2.42	2.35	188	----	
8/13/54	29.4	24.8	22.5	2.12	1.89	300	----	
10/16/54	Free water					90	0.68	Flooded
4/15/55	Flooded							Flooded
5/1/55	31.7	28.9	----	3.72	2.20	116	0.42	8
Area burned over before 5/1/55								
Site 53, Price Co., Wis. Gloucester Sil/SiL (ML)								
6/20/54	30.1	28.4	23.8	2.31	2.27	193	----	
7/23/54	24.7	17.1	14.9	1.90	1.36	300	----	
8/13/54	26.6	19.3	16.1	2.04	1.54	300	----	
9/27/54	26.9	24.5	19.3	2.07	1.55	182	0.31	
4/15/55	36.1	34.5	----	2.77	2.75	130	0.27	12
5/1/55	31.8	27.7	21.6	2.44	2.22	211	0.40	
6/4/55	26.[illegible]	21.8	18.0	2.00	1.74	251	----	
Site 54, Price Co., Wis. Gloucester SL/SL (SM)								
6/20/54	28.4	23.9	21.3	1.67	1.72	109	----	
7/23/54	26.7	18.3	18.7	1.57	1.[illegible]	166	----	
8/13/54	19.8	----	19.9	1.16	----	94	----	
9/27/54	26.5	23.3	17.5	1.56	1.68	155	2.00	
4/15/55	31.3	20.9	19.0	1.84	1.50	154	NT	
5/1/55	27 6	22.4	17.7	1.62	1.61	176	3.56*	
6/4/55	26.8	21.8	21.2	1.58	1.57	152	----	
Site 55, Price Co., Wis. Merrimack Sil/SiL (ML)								
6/20/54	30.[illegible]	27.[illegible]	21.[illegible]	2.24	2.12	220	----	
7/23/54	29.8	22.[illegible]	23.1	2.16	1.71	300	----	
8/13/54	28.8	27.1	21.2	2.09	2.07	196	----	
9/27/54	27.9	24.8	19.[illegible]	2.03	1.83	136	0.57	
4/15/55	35.9	35.0	33.3	2.61	2.67	113	0.42	
5/1/55	33.1	31.[illegible]	27.9	2.40	2.35	171	0.63	
6/4/55	32.[illegible]	31.1	26.6	2.38	2.37	169	----	
6/20/55				Flooded				
Site 56, Wood Co., Wis. Gloucester Sil/SiL (ML)								
5/28/54	36.5	32.8	27.3	2.74	2 48	265	----	
7/23/54	24.9	21.7	19.5	1.87	1.64	300	----	
8/12/54	16.8	15.0	13.3	1.26	1.13	300	----	
10/16/54	33.5	26.5	23.8	2.51	2.00	182	0.58	
4/15/55	34.6	24.6	24.2	2.50	1.86	172	0.44	
5/1/55	32.7	27.4	22.9	2.45	2.07	187	0.63	
5/26/55	31.2	21.1	19.1	2.34	1.60	272	----	
Site 58, Houston Co., Minn. Fayette Sil/SiL (CL)								
6/20/54	30.4	26.3	25.9	2.37	2.30	105	----	
7/26/54	22.2	16.9	21.9	0.95	1.48	300	----	
8/16/54	16.0	11.2	15.6	1.25	0.98	300	----	
9/17/54	23.6	26.6	19.6	1.84	2.33	174	0.84	
11/12/54	22.6	24.5	26.3	1.76	2.17	166	----	
4/14/55	31.4	27.5	27.4	2.45	2.41	96	0.74	
5/10/55	27.5	23.0	23.6	2.15	2.01	202	32	
6/3/55	28.7	25.4	22.9	2.24	2.22	137	----	
Site 59, Houston Co., Minn. Tama Sil/SiL (ML)								
6/29/54	31.5	31.6	29.3	2.27	2.33	180	----	
7/26/54	19.8	25.1	25.5	1.42	1.85	300	----	
8/16/54	23.6	24.0	25.9	1.70	1.77	300	----	
9/17/54	29.9	28.7	28.1	2.15	2.12	254	0.61	
11/12/54	29.9	36.1	30.3	2.15	2.66	230	NT	
4/14/55	31.2	29.4	33.3	2.25	2.17	173	0.59	
5/10/55	23.8	25.6	27.5	1.71	1.89	300	NT	
6/3/55	26.9	26.9	25.7	1.94	1.98	285	----	
Site 60, Houston Co., Minn Dubuque L/L (CL)								
6/29/54	23.[illegible]	20.9	21.7	1.73	1.73	222	----	
7/26/54	9.8	15.5	18.6	0.75	1.28	300	----	
8/16/54	23.5	19.5	20.7	1.80	1.61	277	----	
9/17/54	27.8	26.[illegible]	25.5	2.14	2.22	126	0.48	
11/12/54	27.3	26.8	24.3	2.10	2.22	161	----	
4/14/55	29.1	28.8	26.3	2.23	2.[illegible]	30	0.66	
5/10/55	27.3	27.4	24.8	2.10	2.[illegible]	137	0.47	
6/3/55	26.3	27.3	26.1	2.06	2.26	111	----	

(Continued)

Note: NT = no test.

* Vibrated remolding test.

Table B3c (Continued)

Lake States Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis, 0- to 6-in. Depth	Soil Moisture Content, Percent Weight Basis, 6- to 12-in. Depth	Soil Moisture Content, Percent Weight Basis, 12- to 18-in. Depth	Soil Moisture Content, in./6 in., 0- to 6-in. Depth	Soil Moisture Content, in./6 in., 6- to 12-in. Depth	Done Index, 6- to 12-in. Depth	Remolding Index, 6- to 12-in. Depth	Depth to Water Table in.
Site 61, Fayette Co., Iowa — O'Neill SL/SL (SM)								
6/30/54	26.2	19.4	20.6	1.90	1.48	183	----	
7/27/54	20.3	15.4	13.9	1.47	1.06	248	----	
8/17/54	13.4	11.8	9.7	1.41	0.92	300	----	
9/13/54	13.0	11.3	9.7	1.31	0.99	300	NT	
11/12/54	24.3	20.0	19.2	1.76	1.63	230	----	
3/31/55	Frozen							
5/10/55	23.8	20.0	18.5	1.73	1.63	194	NT	
6/2/55	26.3	17.4	15.9	1.91	1.42	189	----	
Site 62, Fayette Co., Iowa — Carrington L/L (CL)								
6/30/54	29.1	27.7	26.3	1.86	1.68	205	----	
7/27/54	24.6	23.1	24.6	1.39	1.73	282	----	
8/17/54	17.5	18.9	19.2	1.12	1.46	300	----	
9/18/54	24.7	19.4	18.2	1.72	1.50	283	0.20	
11/12/54	26.2	24.0	26.7	1.67	1.66	204	----	
3/31/55	Frozen							
5/10/55	27.8	25.1	24.1	1.75	1.57	220	0.14	
6/2/55	31.0	22.9	21.2	2.02	1.77	164	----	
Site 63, Fayette Co., Iowa — Plainfield SL/SL (SM)								
6/30/54	9.4	7.2	7.0	0.83	0.62	300	----	
7/27/54	5.5	6.9	3.8	0.48	0.60	300	----	
8/17/54	3.7	5.6	3.3	0.32	0.31	300	----	
9/18/54	8.9	6.5	4.8	0.76	0.56	300	NT*	
11/12/54	14.1	9.9	10.2	1.24	0.86	139	----	
3/31/55	11.4	12.7	12.9	1.00	1.09	208	0.91	
5/10/55	12.4	12.7	12.2	1.14	1.10	167	0.80	
6/2/55	12.2	11.3	10.7	1.08	0.97	178	----	
Site 64, Buchanan Co., Iowa — Clyde L/L (CL)								
6/30/54	29.6	24.9	23.9	2.38	2.23	57	----	
7/27/54	21.9	20.5	20.2	1.76	1.65	171	----	
8/17/54	25.4	22.0	22.0	2.04	1.97	98	----	
9/18/54	24.3	21.4	22.4	1.95	1.91	101	0.74	
11/12/54	28.2	20.2	24.0	2.27	1.90	96	----	
3/31/55	33.1	27.9	26.7	2.66	2.47	56	0.92	27
5/10/55	31.1	25.7	25.2	2.54	2.27	56	0.84	8
6/2/55	27.5	23.4	21.6	2.21	2.07	81	----	23
Site 66, Buchanan Co., Iowa — Carrington L/L (CL)								
6/30/54	36.7	27.9	27.1	2.74	2.29	45	----	
7/27/54	17.5	20.3	21.1	1.31	1.67	300	----	
8/17/54	28.9	23.3	20.3	2.16	1.98	153	----	
9/18/54	29.7	28.9	24.7	2.22	2.38	139	0.99	
11/13/54	31.0	28.0	25.7	2.32	2.25	105	----	
3/31/55	35.3	29.6	27.0	2.64	2.43	114	1.25	
5/10/55	40.1	29.0	28.7	3.00	2.38	157	1.00	
6/2/55	32.7	27.3	25.7	2.45	2.24	143	----	
Site 67, Benton Co., Iowa — Carrington SI/SL (SM-SC)								
6/30/54	18.6	13.5	12.4	1.43	1.17	300	----	
7/27/54	9.0	5.0	10.2	0.63	0.44	300	----	
8/17/54	22.2	17.7	8.3	1.70	1.21	300	----	
9/18/54	18.5	12.6	11.8	1.42	1.10	300	NT	
11/13/54	24.2	16.3	16.3	1.86	1.42	300	----	
3/31/55	22.9	19.4	18.8	1.76	1.69	151	0.99	
5/10/55	26.0	19.5	17.5	2.00	1.70	156	0.57	
6/2/55	13.8	12.7	12.6	1.06	1.10	300	----	
Site 68, Benton Co., Iowa — Carrington SL/LS (SM)								
6/30/54	6.0	3.2	2.6	0.52	0.66	300	----	
7/27/54	3.0	3.7	4.0	0.25	0.34	300	----	
8/17/54	12.0	11.5	3.6	1.05	1.16	300	----	
9/18/54	10.0	10.3	10.6	0.97	0.95	254	NT	
11/13/54	9.0	10.9	11.1	0.78	1.01	273	----	
3/31/55	10.1	11.5	11.7	0.83	1.07	128	1.09*	
5/10/55	12.1	10.5	12.3	1.05	1.24	220	1.38*	
6/2/55	10.0	10.8	10.2	0.87	1.00	211	----	
Plowed and disked before 5/10/55								
Site 69, Benton Co., Iowa — Clinton SiL/SiL (CL-ML)								
6/30/54	17.6	16.8	18.7	1.28	1.33	300	----	
7/27/54	7.5	7.9	9.9	0.49	0.58	300	----	
8/17/54	22.4	8.8	9.1	1.46	0.64	50	----	
9/18/54	17.3	14.9	17.3	1.26	1.08	300	NT†	
11/13/54	25.8	19.3	16.0	1.69	1.41	300	----	
3/31/55	29.2	21.3	18.4	1.91	1.69	300	NT	
5/10/55	29.3	21.6	19.9	1.95	1.71	251	----	
6/2/55	17.8	12.4	14.9	1.23	0.97	300	----	
Site 70, Benton Co., Iowa — Tama SiL/SiL (ML)								
6/30/54	21.4	25.2	26.1	1.67	1.84	277	----	
7/27/54	16.3	20.3	19.2	1.27	1.48	300	----	
8/17/54	25.2	21.2	20.9	1.46	1.55	300	----	
9/18/54	25.0	23.3	31.4	1.95	2.44	243	NT†	
11/13/54	27.3	28.8	30.0	2.13	2.11	217	----	
3/31/55	26.2	26.7	30.5	2.04	1.93	227	NT	
5/10/55	28.3	29.0	30.8	2.25	2.12	198	0.89	
6/2/55	20.7	20.0	22.4	1.61	1.46	300	----	
Site 71, Tama Co., Iowa — Tama SiL/SiL (CL)								
7/1/54	24.1	22.7	25.7	1.55	1.50	300	----	
7/27/54	30.0	20.0	20.1	1.28	1.32	300	----	
8/17/54	19.2	21.3	22.0	1.23	2.06	300	----	
9/13/54	27.0	28.8	25.1	1.73	1.90	237	NT	
11/13/54	30.7	30.1	23.4	1.97	1.99	189	----	
4/1/55	36.3	33.9	31.3	2.33	2.24	187	0.70	
5/11/55	37.4	34.5	31.9	2.40	2.28	123	0.76	
6/2/55	29.9	31.4	28.9	1.85	2.07	147	----	
Plowed and disked before 5/11/55, freshly cultivated before 6/2/55								
Site 72, Tama Co., Iowa — Muscatine SiL/SiL (CL)								
7/1/54	24.2	27.1	28.2	1.83	1.84	300	----	
7/27/54	10.5	21.0	22.2	1.10	1.42	300	----	
8/17/54	27.7	23.9	24.4	2.09	1.89	130	----	
9/19/54	25.9	30.5	28.5	2.03	2.07	188	1.14	
11/13/54	28.7	30.6	31.4	2.17	2.09	201	NT	
4/1/55	31.2	32.7	31.3	2.36	2.22	193	0.93	
5/11/55	31.0	30.4	31.9	2.34	2.06	170	0.73	
6/2/55	23.6	22.7	23.9	1.78	1.54	283	----	
Site 73, Tama Co., Iowa — Wabash SiL/SiL (MH)								
7/1/54	22.9	29.6	32.1	1.40	1.79	137	----	
7/27/54	16.0	21.3	25.0	0.95	1.25	215	----	
8/17/54	34.9	26.1	23.9	2.14	1.58	172	----	
9/19/54	31.1	36.8	36.4	1.90	2.23	146	0.94	
11/13/54	31.0	35.8	38.5	1.95	2.17	164	----	
4/1/55	39.8	38.3	40.9	2.44	2.32	180	0.70	
5/11/55	35.2	33.6	37.5	2.20	2.40	139	0.78	
6/2/55	22.8	26.4	28.7	1.40	1.60	173	----	
Site 74, Tama Co., Iowa — Carrington SiL/SiL (CL)								
7/1/54	15.5	16.8	18.2	1.11	1.35	300	----	
7/27/54	11.0	11.6	11.7	0.79	0.98	300	----	
8/17/54	23.7	13.5	9.7	1.72	1.02	300	----	
9/13/54	22.7	20.5	15.5	1.64	1.55	273	NT	
11/13/54	28.8	22.3	21.4	2.07	1.73	224	----	
4/1/55	29.1	23.7	24.7	2.10	1.79	188	0.74	
5/12/55	30.1	23.3	23.0	2.17	1.81	121	0.64	
6/2/55	21.9	16.6	18.2	1.54	1.25	234	----	
Site 75, Jasper Co., Iowa — Muscatine SiL/SiL (CL)								
7/1/54	17.5	20.9	22.6	1.38	1.70	300	----	
7/27/54	16.3	17.4	19.1	1.33	1.46	300	----	
8/17/54	25.3	26.3	25.0	2.04	2.15	153	----	
9/13/54	19.1	20.6	23.7	1.50	1.68	300	NT†	
11/12/54	28.8	24.1	25.3	1.71	1.77	255	----	
4/1/55	24.7	25.2	25.3	1.94	2.06	209	0.96	
5/11/55	22.7	21.3	22.3	1.71	1.73	258	NT	
6/2/55	20.4	19.1	17.8	1.60	1.56	260	----	

(Continued)

Note: NT = no test. † Measured 6- to 6-in. depth.
* Vibrated remolding test

Table B3c (Continued)

Lake States Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis, 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, in./6 in., 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index, 6- to 12-in. Depth	Remolding Index, 6- to 12-in. Depth	Depth to Water Table in.
Site 76, Jasper Co., Iowa — Wabash SiL/SiL (CL)								
7/1/54	22.9	31.1	32.8	1.52	2.35	165	----	
7/27/54	20.3	19.4	18.5	1.35	1.47	293	----	
8/17/54	35.9	33.5	35.3	2.39	2.53	104	----	
9/13/54	22.6	26.1	29.0	1.51	1.97	236	0.96	
11/14/54	29.5	30.1	32.1	1.96	2.28	183	----	
4/1/55	31.5	31.7	32.8	2.10	2.40	147	0.87	
5/11/55	34.4	29.0	31.3	2.29	2.13	134	0.84	
6/9/55	25.0	21.4	24.8	1.67	1.62	247	----	
Site 77, Warren Co., Iowa — Shelby SiL/SiL (CL)								
7/1/54	16.9	17.3	24.2	1.18	1.27	300	----	
7/27/54	14.5	13.4	15.0	1.01	0.98	300	----	
8/18/54	33.8	30.5	28.8	2.35	2.23	113	----	
9/14/54	21.2	22.0	26.1	1.48	1.64	158	NT	
11/14/54	25.8	22.2	25.2	1.65	1.68	242	----	
4/1/55	31.5	26.3	29.9	2.20	1.93	160	0.82	
5/12/55	30.8	24.3	29.1	2.14	1.78	195	0.84	
6/1/55	20.1	17.0	23.6	1.40	1.24	300	----	
Site 78, Warren Co., Iowa — Sharpsburg SiL/SiL (CL)								
7/1/54	18.3	21.7	22.9	1.42	1.61	254	----	
7/23/54	12.1	16.4	17.0	0.91	1.22	300	----	
8/18/54	25.2	29.8	24.2	1.98	2.22	146	----	
9/13/54	17.5	22.6	26.0	1.32	1.68	300	NT	
10/14/54	22.4	25.6	27.6	1.69	1.90	221	----	
4/1/55	22.1	26.6	26.6	1.67	1.98	178	0.80	
5/12/55	25.3	30.6	30.0	1.91	2.28	142	0.76	
6/1/55	22.8	23.6	26.9	1.72	1.76	217	----	
Plowed before 4/1/55								
Site 79, Madison Co., Iowa — Sharpsburg SiL/SiL (CL)								
7/1/54	20.9	19.3	20.8	1.42	1.41	300	----	
7/23/54	15.2	14.4	15.6	1.04	1.07	300	----	
8/18/54	37.3	30.7	23.0	2.55	2.25	153	----	
9/13/54	20.3	19.7	22.4	1.39	1.44	300	NT	
11/14/54	29.0	27.2	24.3	1.96	1.99	165	----	
4/2/55	34.7	29.3	26.6	2.27	2.14	230	0.86	
5/12/55	24.1	21.9	23.1	1.65	1.60	300	----	
6/1/55	16.7	14.6	17.1	1.14	1.07	300	----	
Site 80, Madison Co., Iowa — Shelby SiL/SiC (Ch)								
7/1/54	14.7	23.8	28.0	1.18	2.06	300	----	
7/28/54	11.6	15.3	16.9	0.93	1.32	300	----	
8/19/54	23.2	21.5	20.6	2.35	1.86	210	----	
9/19/54	18.0	25.3	25.9	1.45	2.23	300	NT	
11/14/54	30.0	31.8	30.8	2.41	2.75	132	NT	
4/2/55	27.4	29.7	29.7	2.20	2.57	117	1.04	
5/12/55	22.4	28.7	28.3	1.80	2.48	199	1.03	
6/1/55	20.6	21.7	24.2	1.66	1.87	300	----	
Site 81, Madison Co., Iowa — Winterset SiL/SiL (CL)								
7/2/54	15.0	17.7	23.8	1.09	1.44	300	----	
7/23/54	13.2	14.4	17.4	0.96	1.05	300	----	
8/18/54	31.4	29.6	17.2	2.28	1.60	266	----	
9/20/54	17.2	18.4	21.1	1.25	1.50	300	NT	
11/14/54	24.2	21.9	21.7	1.76	1.79	300	----	
4/2/55	29.6	27.9	29.0	2.15	2.28	213	0.86	
5/12/55	24.8	22.0	26.3	1.80	1.86	300	----	
6/1/55	18.6	14.0	17.1	1.35	1.14	300	----	
Site 82, Adair Co., Iowa — Tama SiL/SiCL (CL)								
7/2/54	15.8	17.7	24.5	1.28	1.55	300	----	
7/28/54	17.4	16.3	16.2	1.41	1.43	300	----	
8/18/54	30.0	17.9	25.3	2.43	1.57	219	----	
9/20/54	16.3	18.3	24.0	1.32	1.66	300	NT	
11/14/54	22.3	25.6	25.7	1.81	2.24	214	----	
4/2/55	24.7	25.0	26.7	2.00	2.19	203	NT	
5/12/55	23.6	23.5	23.5	1.91	1.71	300	NT	
6/1/55	18.2	19.4	19.3	1.52	1.70	300	----	
Site 83, Adair Co., Iowa — Shelby L/CL (CL)								
7/2/54	13.5	15.4	17.1	1.10	1.32	300	----	
7/28/54	11.0	12.0	12.3	0.90	1.03	300	----	
8/18/54	28.9	22.1	16.0	2.36	1.90	185	----	
9/20/54	12.9	15.8	18.6	1.05	1.36	300	NT	
11/15/54	20.1	22.5	21.2	1.64	1.93	253	----	
4/2/55	23.6	23.2	21.1	1.92	1.99	200	1.00	
5/12/55	23.1	18.9	18.7	1.98	1.62	279	NT	
6/1/55	11.8	10.5	9.5	0.96	0.90	300	----	
Site 84, Adair Co., Iowa — Winterset SiL/SiL (ML)								
7/2/54	20.7	27.1	27.1	1.50	1.93	243	----	
7/28/54	20.9	20.6	20.2	1.52	1.47	269	----	
8/18/54	37.0	28.5	17.3	2.69	2.06	173	----	
9/20/54	21.2	25.2	27.2	1.39	1.80	300	NT	
11/15/54	33.6	34.1	33.1	2.44	2.43	171	----	
4/2/55	33.3	33.3	33.5	1.69	2.38	138	0.92	
5/12/55	32.4	35.1	31.5	2.35	2.51	144	0.70	
6/1/55	24.0	27.6	27.6	1.76	1.26	232	----	
Site 85, Cass Co., Iowa — Unclassified SiCL/SiCL (CH)								
7/2/54	35.2	24.6	24.7	2.15	1.93	155	----	
7/28/54	24.6	18.9	23.1	1.51	1.48	300	----	
8/19/54	43.4	36.3	31.1	2.96	2.85	95	----	
9/20/54	34.7	29.7	26.6	2.12	2.33	166	0.95	
11/15/54	41.2	32.2	27.3	2.52	2.53	148	----	
4/2/55	43.0	38.0	28.5	2.62	2.99	161	0.99	
5/12/55	37.3	23.5	28.7	2.31	2.32	159	0.98	
5/31/55	26.9	13.3	22.5	1.65	1.04	258	----	
Site 86, Cass Co., Iowa — Shelby SiL/SiL (CL)								
7/2/54	17.5	13.5	18.2	1.41	1.46	300	----	
7/28/54	10.5	9.6	10.3	0.84	0.76	300	----	
8/18/54	26.8	21.0	12.3	2.15	1.66	300	----	
9/20/54	12.9	12.2	13.6	1.03	0.97	300	NT	
11/15/54	19.2	20.2	16.7	1.54	1.60	300	----	
4/2/55	15.3	15.9	14.3	1.47	1.26	300	NT	
5/12/55	22.5	18.0	18.9	1.81	1.42	300	----	
5/31/55	10.7	11.3	11.5	0.86	0.89	300	----	
Site 87, Audubon Co., Iowa — Tama SiL/SiL (CL)								
7/2/54	20.4	23.2	27.1	1.59	1.80	300	----	
7/28/54	14.6	15.9	17.5	1.14	1.23	300	----	
8/17/54	27.3	13.5	17.5	2.13	1.43	300	----	
9/20/54	17.7	22.9	26.5	1.54	1.80	300	NT	
11/15/54	26.3	32.4	35.3	2.04	2.51	151	----	
4/2/55	26.7	28.1	29.6	2.08	2.17	235	0.87	
5/12/55	25.5	23.2	13.9	1.39	1.80	300	NT	
5/31/55	17.3	16.8	17.5	1.35	1.30	300	----	
Site 88, Audubon Co., Iowa — Wabash L/SiL (CL)								
7/2/54	17.1	16.8	23.4	1.05	1.01	300	----	
7/28/54	14.7	17.8	20.0	0.90	0.95	300	----	
8/19/54	34.5	23.1	22.0	2.11	1.33	225	----	
9/20/54	20.4	20.6	25.9	1.25	1.60	300	NT	
11/15/54	32.7	31.4	35.1	2.00	1.88	136	----	
4/2/55	33.8	33.3	31.8	2.07	2.00	139	0.79	
5/12/55	28.6	28.4	31.2	1.75	1.70	229	NT	
5/31/55	15.9	16.7	20.6	0.97	1.00	300	----	
Site 89, Audubon Co., Iowa — Marshall SiL/SiL (CL)								
7/2/54	16.3	17.4	18.4	1.10	1.13	300	----	
7/28/54	11.3	12.5	11.2	0.77	0.81	300	----	
8/18/54	27.7	18.1	13.0	1.68	1.17	285	----	
9/20/54	19.0	20.6	25.6	1.23	1.33	300	NT	
11/15/54	26.0	26.5	26.2	1.70	1.72	217	----	
4/2/55	27.9	26.2	24.3	1.89	1.70	225	NT	
5/12/55	24.4	23.3	25.5	1.68	1.51	300	----	
5/31/55	14.1	14.6	17.2	0.96	0.95	300	----	

(Continued)

Note: NT = no test.

Table B3c (Continued)

Lake States Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, in./6 in.: 0- to 6-in. Depth	6- to 12 in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 90, Greene Co., Iowa — Storden SiL/L (CL)								
7/2/54	16.7	17.5	21.1	1.21	1.45	300	----	
7/28/54	14.9	13.6	16.2	1.08	1.13	300	----	
8/18/54	32.2	26.6	22.6	2.34	2.20	477	----	
9/20/54	24.7	21.1	23.7	1.79	1.75	149	1.09	
11/16/54	26.5	25.9	24.1	1.98	1.98	139	----	
4/3/55	24.0	21.2	20.8	1.74	1.76	114	0.82	
5/12/55	24.6	20.2	22.0	1.78	1.67	139	1.00	
5/31/55	17.3	14.0	18.7	1.29	1.16	248	----	
Site 91, Greene Co., Iowa — O'Neill SiL/SiL (CL)								
7/2/54	16.1	17.7	20.6	1.06	1.35	300	----	
7/28/54	12.9	11.6	11.3	0.85	0.88	300	----	
8/18/54	31.6	28.8	18.4	2.09	2.19	153	----	
9/20/54	23.7	20.5	21.1	1.56	1.56	258	NT	
11/16/54	27.5	27.2	20.7	1.82	2.07	204	----	
4/3/55	29.2	25.8	23.8	1.93	1.96	186	0.86	
5/12/55	24.8	23.9	23.4	1.64	1.84	186	----	
5/31/55	22.3	17.4	18.9	1.47	1.32	300	----	
Site 92, Greene Co., Iowa — Webster SiL/L (CL)								
7/2/54	37.7	30.0	28.8	2.63	2.27	122	----	
7/28/54	19.7	20.7	19.6	1.41	1.56	199	----	
8/19/54	33.3	32.4	24.6	2.38	2.45	210	----	
9/20/54	24.1	27.6	25.5	1.72	2.09	300	NT	
11/16/54	30.7	31.7	28.0	2.19	2.40	202	----	
4/3/55	26.7	26.8	24.0	1.91	2.03	241	1.02	
5/12/55	20.1	19.2	22.0	1.45	1.45	291	NT	
5/31/55	17.5	17.4	13.5	1.25	1.01	300	----	
Site 93, Webster Co., Iowa — Webster SiL/L (CL)								
7/3/54	36.4	36.0	29.7	2.40	2.68	119	----	
7/28/54	21.2	18.2	17.5	1.40	1.35	187	----	
8/19/54	25.0	19.6	12.8	1.65	1.46	300	----	
9/21/54	33.3	31.9	26.8	2.20	2.37	183	0.90	
11/16/54	39.2	32.0	27.5	2.59	2.38	131	----	
4/3/55	36.2	37.1	33.3	2.52	2.76	151	0.96	
5/13/55	25.4	27.1	23.4	1.74	2.02	199	NT	
5/31/55	14.3	17.8	17.8	0.94	1.32	280	----	
Site 94, Webster Co., Iowa — Clarion L/L (CL)								
7/3/54	17.1	17.3	16.9	1.50	1.59	300	----	
7/23/54	12.6	10.5	10.1	1.11	0.97	300	----	
8/19/54	34.6	29.3	22.6	3.04	2.75	180	----	
9/21/54	19.9	18.4	18.6	1.66	1.69	300	NT	
11/16/54	21.1	22.4	20.5	1.86	2.06	221	----	
4/3/55	21.7	21.9	21.1	1.91	2.01	163	0.96	
5/13/55	16.0	14.7	14.3	1.41	1.35	300	NT	
5/31/55	16.4	12.7	10.8	1.44	1.08	300	----	
Site 95, Humbolt Co., Iowa — Hayden SL/SL (CL)								
7/3/54	34.5	27.9	25.8	2.50	2.31	131	----	
7/20/54	23.0	20.1	21.5	1.67	1.66	238	----	
8/19/54	28.8	27.6	28.0	2.09	2.28	124	----	
9/21/54	24.4	18.9	18.4	1.77	1.56	300	NT	
11/16/54	34.0	28.8	25.8	2.47	2.38	172	----	
4/3/55	36.0	29.9	28.3	2.61	2.48	149	0.80	
5/13/55	30.5	23.4	21.2	2.21	1.94	182	NT	
5/31/55	20.9	16.8	16.5	1.52	1.39	246	----	
Site 96, Humbolt Co., Iowa — Clarion L/L (CL)								
7/3/54	----	19.3	21.1	----	1.47	300	----	
7/28/54	15.2	16.4	16.4	1.08	1.21	300	----	
8/19/54	22.4	21.4	19.3	1.60	1.58	201	----	
9/21/54	20.8	22.1	21.5	1.48	1.63	300	NT	
11/16/54	22.5	23.8	23.7	1.61	1.76	234	----	
4/3/55	22.9	24.4	22.2	1.64	1.80	198	0.90	
5/13/55	20.4	20.9	20.1	1.46	1.54	246	0.92	
5/31/55	19.9	21.0	19.5	1.42	1.55	246	----	
Plowed before 4/3/55								
Site 97, Kossuth Co., Iowa — Unclassified SL/L (CL)								
7/3/54	22.7	23.1	20.3	1.61	1.69	291	----	
7/29/54	15.6	14.2	15.7	1.10	1.04	300	----	
8/19/54	22.7	23.8	19.0	1.60	1.74	300	----	
9/21/54	20.1	23.6	21.3	1.42	1.73	300	NT	
11/16/54	23.6	29.5	23.4	1.67	2.16	245	----	
4/3/55	33.1	Frozen	Frozen	2.44	Frozen	Frozen	0.56†	
5/13/55	20.8	22.2	17.3	1.47	1.55	290	----	
5/31/55	20.1	13.8	12.9	1.42	1.01	300	----	
Site 98, Kossuth Co., Iowa — Nicolett SL/L (CL)								
7/3/54	34.3	27.3	21.8	2.35	1.83	164	----	
7/29/54	34.1	25.0	18.6	2.33	1.68	194	----	
8/13/54	32.7	26.6	21.3	2.24	1.85	169	----	
9/21/54	28.9	28.4	18.9	1.98	1.91	209	0.9[illegible]	
11/16/54	43.1	39.5	32.2	2.95	2.65	160	----	
4/3/55	35.1	29.0	Frozen	2.40	1.96	182	0.86	
5/13/55	27.7	25.7	20.5	1.89	1.73	210	NT	
5/31/55	24.2	16.9	13.4	1.65	1.14	300	----	
Site 99, Winnebago Co., Iowa — Webster SiL/SiL (CL)								
7/3/54	47.4	30.6	30.1	2.79	2.11	91	----	
7/29/54	49.6	32.1	27.1	2.92	2.21	159	----	
8/19/54	49.2	32.2	28.9	2.89	2.22	98	----	
9/21/54	36.1	26.9	26.4	2.12	1.86	211	0.74	
11/17/54	48.2	32.0	31.8	2.83	2.21	144	----	
4/3/55	44.8	Frozen	Frozen	2.63	Frozen	Frozen	Frozen	
5/13/55	38.2	28.7	26.9	2.27	1.98	181	0.90	
5/31/55	31.4	25.2	25.4	1.85	1.74	216	----	
Site 102, Freeborn Co., Minn. — Unclassified SiL/SiL (CL)								
7/3/54	26.4	25.0	22.4	1.89	2.06	160	----	
7/29/54	25.0	16.0	17.0	1.76	1.39	300	----	
8/19/54	19.5	15.6	14.5	1.37	1.28	300	----	
9/22/54	28.2	26.4	23.3	1.98	2.17	169	0.78	
11/17/54	34.9	29.2	24.0	2.45	2.40	172	----	
4/4/55	33.1	28.4	23.2	2.32	2.33	160	0.78	
5/13/55	21.7	20.2	19.1	1.52	1.66	250	----	
5/30/55	23.7	14.6	15.7	1.66	1.20	294	----	
Site 103, Freeborn Co., Minn. — Unclassified SL/SL (SC)								
7/3/54	25.4	16.8	14.6	1.72	1.43	300	----	
7/29/54	13.1	9.9	9.7	1.29	0.84	300	----	
8/19/54	20.2	12.4	9.5	1.37	1.06	300	----	
9/22/54	25.5	28.0	16.3	1.73	2.38	229	0.86	
11/17/54	26.0	18.7	16.9	1.76	1.59	229	----	
4/4/55	25.1	19.5	16.6	1.70	1.66	228	0.78	
5/13/55	22.5	15.0	13.6	1.52	1.28	300	NT	
5/30/55	21.7	10.4	11.2	1.47	0.89	300	----	
Site 104, Waseco Co., Minn. — Webster L/L (ML)								
7/4/54	30.3	30.4	29.0	2.07	2.23	209	----	
7/29/54	24.8	17.5	18.6	1.70	1.28	300	----	
8/19/54	27.9	24.6	20.0	1.91	1.80	300	----	
9/22/54	31.8	30.1	24.7	2.18	2.20	285	NT	
11/17/54	31.2	31.7	27.6	2.13	2.32	300	----	
4/4/55	36.8	31.6	28.3	2.52	2.31	284	NT	
5/12/55	21.9	22.3	22.6	1.50	1.63	300	----	
5/30/55	23.8	17.2	18.0	1.63	1.26	300	----	
Site 105, Waseco Co., Minn. — Clarion L/L (CL)								
7/4/54	40.7	25.3	22.4	2.59	2.03	151	----	
7/29/54	20.1	13.6	14.6	1.28	1.09	300	----	
8/19/54	28.6	18.8	16.1	1.82	1.51	263	----	
9/22/54	37.1	26.5	23.3	2.35	2.13	173	0.92	
11/17/54	37.5	24.5	23.4	2.38	1.97	183	----	
4/4/55	38.3	27.7	23.7	2.44	2.23	173	0.67	
5/13/55	26.3	17.8	18.1	1.67	1.43	300	----	
5/30/55	22.9	13.[illegible]	13.7	1.46	1.08	300	----	

(Continued)

Note: NT = no test.
† Measured 0- to 6-in. depth.

Table B3c (Continued)

Lake States Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis, 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, in./6 in., 0- to 6-in. Depth	6- to 12-in Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 106, Dakota Co., Minn. Etter SL/SL (SM)								
7/4/54	12.0	14.7	16.5	1.08	1.23	124	----	
7/29/54	4.2	8.3	9.9	0.38	0.70	300	----	
8/13/54	6.9	7.4	7.5	0.62	0.62	300	----	
9/22/54	20.3	13.7	17.2	1.83	1.15	188	NT	
11/13/54	10.5	13.7	15.7	0.94	1.15	170	----	
4/5/55	14.0	16.3	16.9	1.26	1.37	110	0.96	
5/14/55	5.0	7.3	11.6	0.45	0.66	300	----	
5/30/55	5.5	5.9	6.5	0.76	0.50	300	----	
Site 107, Dakota Co., Minn. Marshan SiL/SiL (CL)								
7/4/54	56.2	36.2	29.6	3.00	2.52	101	----	
7/29/54	46.2	28.5	22.8	2.47	1.98	123	----	
8/19/54	48.5	30.2	21.4	2.59	2.10	136	----	
9/22/54	55.0	40.7	33.8	2.94	2.83	120	0.87	
11/18/54	56.9	38.5	34.6	3.04	2.68	144	----	
4/5/55				Frozen				
5/14/55	46.4	31.9	28.0	2.48	2.22	132	0.89	
5/30/55	42.1	36.8	26.8	2.25	2.56	131	----	
Site 108, St. Croix Co., Wis. Jewette SiL/L (CL-ML)								
6/3/54	22.6	20.1	25.4	1.98	1.79	150	----	
7/30/54	12.9	13.1	15.3	1.13	1.17	300	----	
8/20/54	14.7	13.2	14.8	1.29	1.18	300	----	
9/22/54	21.1	18.8	19.6	1.85	1.68	192	0.73	
11/18/54	22.9	18.2	19.6	2.01	1.64	184	----	
4/5/55	25.3	20.7	21.7	2.27	1.85	131	0.80	
5/14/55	19.5	18.2	18.5	1.71	1.63	205	0.92	
6/3/55	21.6	19.4	18.9	1.89	1.73	188	----	
Plowed before 5/14/55								
Site 109, St. Croix Co., Wis. Onamia SiL/SiL (ML)								
6/3/54	31.3	29.6	32.5	1.97	2.15	135	----	
7/23/54	22.8	21.7	19.6	1.44	1.58	194	----	
8/20/54	29.8	25.9	21.5	1.88	1.88	139	----	
9/22/54	29.3	24.0	----	1.85	1.74	115	0.87	
11/18/54	31.0	28.2	23.1	1.95	2.05	212	----	
4/5/55	29.5	30.6	25.4	1.86	2.22	174	0.42	
5/14/55	13.4	18.4	20.4	0.84	1.34	263	----	
6/3/55	24.2	21.3	18.8	1.52	1.55	189	----	
Site 110, St. Croix Co., Wis. Dakota L/L (CL-ML)								
6/3/54	19.5	19.8	24.0	1.87	1.35	183	----	
7/30/54	10.5	9.7	12.4	1.01	0.95	300	----	
8/20/54	11.2	7.9	6.2	1.07	0.77	211	----	
9/23/54	16.4	16.2	16.7	1.57	1.59	300	0.98	
11/18/54	15.5	15.1	17.5	1.49	1.46	300	----	
4/5/55	18.4	15.0	16.9	1.77	1.47	153	0.59	
5/14/55	7.4	8.2	13.3	0.71	0.80	300	----	
6/3/55	12.5	7.4	9.9	1.20	0.73	300	----	
Site 111, St. Croix Co., Wis. Milica SL/SL (SM)								
6/3/54	18.0	15.4	20.9	1.40	1.52	107	----	
7/30/54	10.8	8.0	7.6	0.84	0.79	131	----	
8/20/54	10.5	9.4	10.8	0.82	0.93	300	----	
9/23/54	23.0	13.5	11.7	1.79	1.34	139	NT	
11/18/54	14.0	15.4	21.5	1.09	1.53	138	----	
4/5/55	34.1	21.1	17.1	2.66	2.09	125	0.55	
5/14/55	21.6	13.5	12.6	1.68	1.34	187	NT	
6/3/55	18.3	12.0	10.4	1.43	1.19	168	----	
Site 112, Polk Co., Wis. Spooner SiL/SiL (CL)								
6/4/54	31.1	22.3	29.5	2.20	1.95	178	----	
7/30/54	23.1	14.1	9.8	1.64	1.24	300	----	
8/20/54	23.2	14.7	17.4	1.64	1.29	300	----	
9/23/54	34.8	22.1	21.1	2.46	1.94	182	0.58	
11/18/54	33.0	21.4	22.1	2.34	1.87	216	----	
4/5/55			Flooded			186	----	
5/14/55	21.3	15.2	17.7	1.51	1.33	300	----	
6/3/55	22.2	13.9	13.2	1.57	1.22	300	----	
Site 113, Polk Co., Wis. Freer SiL/SiL (ML)								
6/4/54	24.8	27.6	29.7	2.13	2.20	169	----	
7/30/54	18.8	14.4	17.2	1.57	1.15	300	----	
8/20/54	14.6	12.7	9.4	1.22	1.01	300	----	
9/23/54	25.5	24.1	21.5	2.15	1.92	258	0.71	
11/18/54	28.8	23.6	24.3	2.40	1.88	243	----	
4/5/55			Flooded			237	----	
5/14/55	15.0	17.2	19.7	1.25	1.37	300	----	
6/3/55	18.9	14.0	14.5	1.58	1.12	300	----	
Site 114, Rusk Co., Wis. Unclassified SiL/SiL (ML)								
6/4/54	33.8	28.9	31.2	2.23	2.27	217	----	
7/30/54	33.0	17.3	16.0	2.18	1.36	300	----	
8/20/54	19.1	16.2	17.5	1.26	1.21	300	----	
9/23/54	36.4	26.0	23.2	2.40	2.04	198	0.59	
11/18/54	32.2	23.4	22.1	2.32	1.84	220	----	
5/14/55	20.0	20.1	19.3	1.32	1.58	300	----	
6/20/55	19.8	17.5	16.0	1.31	1.38	300	NT	
6/8/55	21.5	18.4	16.4	1.42	1.48	254	----	
Site 115, Rusk Co., Wis. Spencer L/SL (SC)								
6/4/54	24.6	21.2	26.2	1.56	1.70	101	----	
7/30/54	29.6	14.6	13.1	1.88	1.17	202	----	
8/20/54	12.5	9.9	7.7	0.80	0.80	180	----	
9/23/54	22.5	20.3	16.4	1.43	1.63	168	NT	
11/16/54	25.2	22.3	11.5	1.60	1.79	149	----	
5/14/55	27.4	20.1	17.6	1.74	1.62	180	NT	
5/20/55	23.2	20.8	19.6	1.48	1.67	168	----	
6/8/55	29.8	25.2	21.0	1.90	2.03	114	----	
Site 116, Rusk Co., Wis. Unclassified SL/SL (SM)								
6/4/54	16.9	15.5	18.2	1.38	1.37	248	----	
7/30/54	11.9	7.6	6.5	0.90	0.57	300	----	
8/20/54	3.0	8.1	6.8	0.68	0.71	300	----	
9/23/54	16.5	15.0	10.7	1.26	1.32	252	NT	
11/13/54	15.7	22.6	12.5	1.19	1.99	300	----	
4/5/55	20.4	15.9	13.3	1.54	1.40	239	0.62	
5/14/55	7.4	9.2	7.3	0.86	0.81	300	----	
6/4/55	14.5	13.2	11.0	1.10	1.16	300	----	
Site 117, Rusk Co., Wis. Unclassified SiL/SiL (ML)								
6/4/54	31.3	24.5	23.7	1.99	2.07	155	----	
7/30/54	33.7	16.5	12.4	1.80	1.40	224	----	
8/20/54	25.1	14.1	12.6	1.39	1.19	300	----	
9/23/54	37.7	24.3	19.3	2.01	2.06	156	0.26	
11/18/54	37.7	22.2	18.1	2.01	1.88	139	----	
5/14/55	40.3	23.4	19.0	2.15	1.98	263	NT	
6/4/55	34.8	22.2	17.9	2.93	1.88	125	----	
Site 118, Oneida Co., Wis. Plainfield SL/SL (SM)								
5/1/54	24.3	17.6	29.4	1.53	1.13	75	----	
8/3/54	11.4	8.3	5.6	0.72	0.53	156	----	
8/23/54	19.8	13.9	8.5	1.25	0.89	71	----	
9/27/54	14.4	12.1	19.8	0.91	0.75	169	NT	
10/26/54	16.3	13.8	12.2	1.03	0.89	139	----	
4/13/55	27.9	20.6	12.8	1.75	1.32	104	0.60	
5/16/55	9.2	11.6	8.3	0.58	0.74	198	1.71*	
6/5/55	18.5	13.6	11.6	1.16	0.87	153	----	
Site 119, Oneida Co., Wis. Vilas SL/SL (SM)								
6/1/54	23.7	21.7	25.0	1.80	1.56	136	----	
8/3/54	15.7	10.2	7.1	0.95	0.73	300	----	
8/23/54	25.2	18.1	7.2	1.53	1.30	215	----	
9/27/54	21.9	17.3	15.8	1.33	1.25	135	0.71	
10/26/54	22.7	13.4	13.3	1.38	1.32	142	----	
4/19/55	28.6	21.8	16.3	1.73	1.57	136	0.52	
5/16/55	26.2	22.3	16.3	1.59	1.60	195	1.19*	
6/5/55	27.5	19.5	15.6	1.67	1.40	142	----	

(Continued)

Note: NT = no test.
* Vibrated remolding test.

Table B3c (Continued)

Lake States Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, in./6 in.: 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 120, Oneida Co., Wis. Plainfield LS/LS (SM)								
6/1/54	20.0	14.9	22.2	1.31	1.04	99	----	
8/3/54	18.1	12.3	7.7	1.13	0.86	117	----	
8/23/54	13.1	10.4	6.9	0.86	0.72	132	----	
9/27/54	15.4	11.2	25.9	1.01	0.78	110	1.46	
10/26/54	3.8	10.2	9.0	0.64	0.71	146	----	
4/19/55	21.0	13.7	11.4	1.37	0.95	136	1.31*	
5/16/55	16.1	11.0	8.9	1.05	0.81	118	----	
6/5/55	16.8	12.0	10.1	1.10	0.84	112	----	
Site 121, Price Co., Wis. Kennan SL/SL (SM)								
6/1/54	36.0	33.3	38.8	1.94	2.08	126	----	
8/3/54	21.2	18.5	15.0	1.14	1.15	160	----	
8/23/54	19.0	13.4	9.8	1.03	0.84	164	----	
9/27/54	23.9	20.7	18.3	1.29	1.29	144	NT	
10/26/54	30.7	24.4	20.8	1.66	1.52	154	----	
4/19/55	35.3	25.3	22.4	1.91	1.58	149	NT	
5/16/55	23.1	20.0	17.0	1.25	1.25	156	----	
6/5/55	22.9	19.9	17.1	1.24	1.24	154	----	
Site 122, Price Co., Wis. Kennan SL/SL (ML)								
6/1/54	37.1	35.2	38.9	2.47	2.52	139	----	
8/3/54	34.2	30.6	23.6	2.32	2.15	178	----	
8/23/54	34.8	31.2	23.8	2.32	2.24	131	----	
9/27/54	36 7	30 9	34.5	2.44	2.17	173	0.67	
10/26/54	29.2	27.5	19.3	1.94	1.93	153	----	
4/19/55	35.5	35.6	29.0	2.36	2.50	131	0.53	
5/16/55	31.1	32.1	21.2	2.07	2.25	211	0.62	
6/5/55	31.2	30.6	21.2	2.12	2.15	189	----	
Site 123, Ashland Co., Wis. Ontonagon SL/LS (SM)								
7/12/54	41.0	28.3	21.3	2.51	2.31	202	----	
8/3/54	38.3	21.7	16.2	2.34	1.77	223	----	
8/23/54	42.6	22.3	16.8	2.61	1.82	264	----	
10/4/54	48.2	----	21.8	2.95	----	185	0.49	12
10/26/54	42.7	34.2	29.0	2.61	2.79	137	----	
4/19/55	37.3	FW	FW	2.28	FW	148	----	6
5/16/55	32.1	34.6	23.9	1.96	2.82	139	0.30	
6/5/55	30.6	25.9	21.5	1.87	2.11	170	----	
Site 124, Bayfield Co., Wis. Ontonagon L/C (CH)								
7/12/54	32.2	29.1	28.2	2.35	2.39	201	----	
8/3/54	23.2	22.8	23.4	1.71	1.87	300	----	
8/23/54	22 7	19.4	21.6	1.62	1.53	300	----	
10/4/54	28.2	22.7	22.0	2.01	1.86	155	NT	
10/27/54	32 2	27.7	28.0	2.30	2.27	203	----	0
4/19/55	FW	FW	FW	FW	FW	158	----	
5/16/55	34.5	30.2	28.9	2.46	2.48	206	NT	
6/5/55	26.5	19.0	24.5	1.89	1.56	285	----	
Site 125, Bayfield Co., Wis. Ontonagon L/CL (CL)								
7/12/54	31.1	21.1	26.4	1.96	1.81	300	----	
8/3/54	16.4	21.1	25.2	1.03	1.81	300	----	
8/23/54	18.8	16.5	18.5	1.18	1.42	300	----	
10/4/54	19.5	24.6	24.1	1.23	2.11	268	NT	
10/27/54	37.5	24.0	23.7	2.36	2.06	161	----	5
4/19/55	FW	FW	FW	FW	FW	147	----	0
5/16/55	23.5	24.2	25.2	1.48	2.08	225	NT	
6/5/55	24.9	24.1	28.2	1.57	2.07	172	----	
Site 126, Aitkin Co., Minn. Unclassified SiL/SiL (ML)								
7/13/54	33.7	23.4	19.1	2.12	1.32	184	----	
8/4/54	27.3	15.3	13.1	1.76	1.26	271	----	
8/24/54	23.3	15 3	11.6	1.47	1.26	271	----	
10/5/54	23.0	9.5	7.8	1.45	0.75	291	NT	
10/27/54	25.3	13.7	12.2	1.63	1.13	276	----	
4/20/55	32.1	21.2	18.6	2.02	1.74	246	NT	
5/17/55	35.7	21.3	22.3	2.25	1.80	256	NT	
6/6/55	35.9	23.1	23.4	2.26	1.90	181	----	
Site 127, Aitkin Co., Minn. Unclassified SiL/SiL (ML)								
7/13/54	35.0	27.0	24.7	2.46	2.12	123	----	
8/4/54	29.6	21.3	13.0	2.08	1.67	206	----	
8/24/54	21.2	13.3	13.6	1.49	1.05	248	----	
10/5/54	26.5	16.5	13.2	1.86	1.30	217	NT	
10/27/54	25.0	17.8	14.4	1.76	1.40	228	----	
4/20/55	38.1	28.6	26.3	2.67	2.25	134	0.35	
5/17/55	31.1	23.3	21.8	2.18	1.83	127	0.49	
6/6/55	36.4	30.0	29.9	2.56	2.36	69	----	
Site 128, Cass Co., Minn. Unclassified SiL/SiL (CL-ML)								
7/13/54			Flooded				----	0
8/4/54	37.5	15.1	16.2	2.26	1.18	274	----	
8/24/54	31 2	13 4	4.1	1.89	1 04	263	----	
10/5/54	36.0	15 2	10.8	2.18	1 18	282	NT	
10/27/54	40.7	22.4	17.6	2.47	1.75	172	----	
4/20/55			Flooded			193	----	Flooded
5/17/55	FW	FW	FW	FW	FW	147	NT	6
6/6/55			Flooded			174	----	Flooded
Site 129, Cass Co., Minn. Unclassified L/SiCL (CL)								
7/13/54	29.3	25.7	24.3	2.02	2.13	211	----	
8/4/54	16.4	20.4	20.8	1.13	1.69	300	----	
8/24/54	15.4	18.6	18.2	1.06	1.54	300	----	
10/5/54	22.7	20.0	17.0	1.57	1.66	300	NT	
10/27/54	23.2	22.6	22.2	1.60	1.87	285	----	
4/20/55	28.9	26.0	27.7	1.99	2.15	220	NT	
5/17/55	23.8	19.7	22.1	1.64	1.63	272	NT	
6/6/55	27.5	23.9	23.6	1.90	1.98	212	NT	
Site 130, Hubbard Co., Minn. Hubbard SL/SL (SM)								
7/13/54	8.7	7.2	5.0	0.64	0.60	300	----	
8/4/54	10.5	6.4	0.2	0.77	0.54	300	----	
8/24/54	11.2	8.0	3.9	0.82	0.50	300	----	
10/5/54	12.6	6.1	8.0	0.92	0.51	300	NT†	
10/28/54	12.3	9.3	5 6	0.90	0.78	300	----	
4/20/55	18.6	12.1	8.5	1.36	1.02	231	NT*	
5/17/55	10.3	9.4	8.6	0.75	0.73	300	NT	
6/6/55	20.0	14.6	10.7	1.46	1.23	233	----	
Site 131, Hubbard Co., Minn. Todd LS/LS (SM)								
7/13/54	4.8	6.1	4.3	0.43	0.55	300	----	
8/4/54	4.1	2.5	4.1	0.37	0.22	300	----	
8/24/54	5.1	4.3	6.5	0.46	0.39	300	----	
10/5/54	7.3	7.3	6.1	0.66	0.66	300	NT	
10/28/54	9.4	8.3	6.5	0.85	0.75	300	----	
4/20/55	10.1	8.5	8.2	0.91	0.76	300	0.81	
5/17/55	24.4	39.7	7.4	0.22	0.36	300	NT	
6/6/55	15.5	10.9	10.3	1.40	0.98	249	----	
Site 132, Hubbard Co , Minn. Menahga LS/LS (SM)								
7/13/54	3.2	3.4	4.3	0.29	0.32	285	----	
8 4/54	6 2	4 3	2 4	0.56	0 40	300	----	
8/24/54	7 5	4 7	4.8	0.68	0.44	283	----	
10/5/54	6.5	4.5	3.9	0.58	0.42	300	NT	
10/28/54	7.6	5.5	6.3	0.68	0.51	217	----	
4/20/55	9.4	7.8	7.4	0.85	0.72	211	1.51*	
5 17/55	5.7	4.-	5.3	0.51	0.41	228	NT	
6/6/55	14 2	8.0	7.6	1.28	0.74	203	----	
Site 133, Hubbard Co., Minn. Hubbard SL/LS (SM)								
7/13/54	9.4	6.8	3.9	0.83	0.62	300	----	
8/4/54	8.2	6.4	4.1	0.72	0.58	300	----	
8/24/54	7.7	5.9	7.7	0.68	0.54	300	----	
10/5/54	13.3	12.2	10.0	1.17	1.11	287	NT	
10/28/54	18.9	11.3	12.6	1.67	1.08	279	----	
4/20/55	18.1	12.9	10.4	1.60	1.18	221	NT*	
5/17/55	10.5	12.1	10.8	0.93	1.10	300	NT	
6/10/55	19.1	13.9	5.0	1.68	1.27	275	----	

(Continued)

Note: NT = no test.
FW = free water

* Vibrated remolding test.
† Measured 0- to 6-in. depth.

Table B3c (Continued)

Lake States Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, in./6 in.: 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 134, Hubbard Co., Minn. Rockwood SI/SL (SM)								
7/13/54	12.2	7.5	5.2	1.02	0.66	300	----	
8/4/54	12.3	3.7	4.1	1.02	0.32	300	----	
8/24/54	10.1	11.4	4.3	0.84	1.00	300	----	
10/5/54	14.5	12.8	6.5	1.21	1.12	300	NT	
10/28/54	15.3	6.2	10.9	1.28	0.54	300	----	
4/20/55	22.7	11.1	8.8	1.89	0.97	232	1.14*	
5/17/55	15.5	10.8	9.0	1.29	0.95	289	NT	
6/6/55	21.3	15.7	11.2	1.78	1.38	156	----	
Site 135, Becker Co., Minn. Unclassified L/L (ML)								
7/14/54	45.4	27.7	50.5	2.9[illegible]	2.18	143	----	
8/4/54	38.0	33.8	36.3	2.46	2.66	158	----	
8/24/54	37.9	34.8	28.3	2.46	2.74	273	----	
10/5/54	32.5	22.6	34.5	2.11	1.78	191	0.44	
10/28/54	37.9	28.6	34.8	2.46	2.25	218	----	
4/21/55	27.4	12.1	16.7	1.78	0.95	212	1.10	
5/17/55	30.2	12.7	11.6	1.96	1.00	300	NT	
6/6/55	32.9	11.0	14.2	2.13	0.86	225	----	
Site 136, Becker Co., Minn. Pierce SL/LS (SM)								
7/14/54	11.9	4.4	5.1	0.80	0.40	181	----	
8/4/54	8.3	4.2	4.6	0.56	0.38	300	----	
8/25/54	8.5	3.0	3.3	0.57	0.27	300	----	
10/5/54	12.2	6.2	4.3	0.82	0.56	205	NT	
10/28/54	19.0	8.6	7.1	1.28	0.77	192	----	
4/21/55	23.9	8.2	6.4	1.61	0.74	196	NT*	
5/17/55	10.9	6.4	5.8	0.73	0.58	251	----	
6/6/55	23.7	7.3	3 0	1.59	0.66	139	----	
Site 137, Otter Tail Co., Minn. Barnes L/SiL (CL)								
7/14/54	19.1	14.9	9.8	1.27	1.09	300	----	
8/5/54	11.3	9.2	10.2	0.75	0.67	300	----	
8/24/54	10.6	8.7	7.8	0.71	0.64	300	----	
10/5/54	10.4	10.3	8.9	0.69	0.75	300	NT	
10/28/54	12.2	9.1	8.7	0.81	0.67	300	----	
4/21/55	12.6	11.5	7.4	0.84	0.84	300	----	
5/18/55	12.4	1.2	9.4	0.82	0.88	300	NT	
6/6/55	17.0	2.0	8.9	1.13	1.46	295	----	
Site 138, Otter Tail Co., Minn. Barnes SL/SL (SC)								
7/14/54	18.8	14.6	12.3	1.12	1.00	284	----	
8/5/54	20.5	14.4	9.4	1.22	0.98	278	----	
8/24/54	16.3	9.6	8.4	0.97	0.66	300	----	
10/5/54	20.7	16.4	15.1	1.23	1.12	289	NT	
10/29/54	17.1	13.0	12.9	1.02	0.89	275	----	
4/21/55	21.1	15.3	13.2	1.25	1.05	251	NT	
5/18/55	12.2	9.1	9.1	0.72	0.62	300	----	
6/6/55	28.0	16.4	14.0	1.66	1.09	260	----	
Site 139, Wilkin Co., Minn. Fargo CL/SiCL (CH)								
7/14/54	18.9	20.5	23.2	1.20	1.51	300	----	
8/5/54	23.6	20.9	22.5	1.50	1.53	300	----	
8/25/54	30.2	25.2	21.1	1.92	1.84	276	----	
10/6/54	27.8	28.9	26.0	1.77	2.12	205	1.00	
10/29/54	28.7	25.0	22.9	1.83	1.83	258	----	
4/21/55	31.5	28.4	25.1	2.00	2.08	194	0.99	
5/18/55	20.0	22.0	22.5	1.27	1.61	268	NT	
6/7/55	25.6	23.3	23.9	1.63	1.70	256	----	
Site 140, Wilkin Co., Minn. Grimstad L/SL (CL)								
7/14/54	20.9	19.6	18.5	1.44	1.59	233	----	
8/5/54	20.1	18.4	14.6	1.39	1.49	300	----	
8/25/54	20.2	18.4	16.7	1.39	1.49	255	----	
10/6/54	21.0	17.1	18.9	1.45	1.39	300	NT	
10/29/54	19.0	16.1	21.6	1.31	1.30	211	----	
4/21/55	20.7	18.1	16.2	1.43	1.47	215	0.77	
5/18/55	18.4	17.4	14.5	1.27	1.41	300	NT	
6/7/55	21.0	15.9	11.7	1.45	1.29	300	----	
Plowed before 4/21/55								
Site 142, Wilkin Co., Minn. Ulen L/SiC (CL)								
7/14/54	26.7	27.5	29.5	1.88	2.38	75	----	
8/5/54	26.0	24.0	21.9	1.83	2.07	105	----	
8/25/54	26.9	20.2	20.1	1.89	1.75	125	----	
10/6/54	23.0	22.8	22.5	1.62	1.97	156	0.99	
10/29/54	25.1	23.6	29.0	1.77	2.04	162	----	
4/21/55	29.3	29.4	32.5	2.07	2.54	100	0.96	
5/18/55	26.8	26.9	29.5	1.89	2.32	138	0.92	
6/7/55	28.1	26.2	30.6	1.99	2.26	127	----	
Site 143, Grant Co., Minn. Bearden L/L (CL)								
7/14/54	40.2	33.8	33.8	2.81	2.40	79	----	
8/5/54	32.9	29.5	26.2	2.30	2.09	99	----	
8/25/54	29.7	27.9	25.2	2.08	1.98	111	----	
4/21/55	39.3	31.0	24.8	2.75	2.20	88	1.04	
5/18/55	32.3	31.2	24.5	2.26	2.22	160	0.85	
6/7/55	33.3	28.8	17.4	2.33	1.23	161	----	
Plowed before 4/21/55								
Site 144, Grant Co., Minn. Unclassified SiL/L (CL)								
7/14/54	20.2	20.3	18.6	1.16	1.53	190	----	
8/5/54	20.5	15 9	14.4	1.18	1.20	300	----	
8/25/54	27.6	24.8	21.6	1.59	1.87	156	----	
10/6/54	32.1	30.2	25.5	1.85	2.28	164	0.93	
10/29/54	35.4	28.0	23.4	2.04	2.12	184	----	
4/21/55	26.7	28.0	21.3	1.54	2.12	91	1.00	
5/18/55	30.3	24.6	21.5	1.74	1.86	172	0.98	
6/7/55	30.2	26.8	26.0	1.74	2.03	218	----	
Site moved to edge of field 10/29/54, plowed and disked before 4/21/55								
Site 146, Stevens Co., Minn. Fargo SiL/SiL (MH)								
7/15/54	13.8	23.8	23.6	0.81	1.60	166	----	
8/5/54	29.1	21.7	18.9	1.71	1.46	205	----	
8/25/54	28 0	22.8	18.2	1.65	1.53	205	----	
10/6/54	34.3	25.8	22.1	2.02	1.73	216	NT	
10/29/54	41.8	22.9	18.5	2.46	1.54	244	----	
4/21/55	36.0	29.7	25.4	2.12	2.00	183	1.30	
5/18/55	21.4	19.5	18.7	1.26	1.31	294	NT	
6/7/55	33.3	20.6	16.4	1.96	1.38	261	----	
Site 147, Stevens Co., Minn. Sioux SiL/SiL (CL)								
7/15/54	22.5	22.9	21.4	1.66	1.70	166	----	
8/5/54	17.1	15.8	16.9	1.26	1.18	238	----	
8/25/54	22.4	18.4	19.1	1.65	1.37	224	----	
10/6/54	19.5	20.1	18.0	1.44	1.50	182	NT	
10/29/54	26.2	22.0	18.6	1.93	1.64	177	----	
4/21/55	22.6	21.8	21.2	1.67	1.62	198	1.10	
5/18/55	14.6	19.0	20.0	1.08	1.41	256	NT	
6/7/55	23.0	12.2	18.1	1.70	0.91	223	----	
Site 148, Stevens Co., Minn. Clarion SiL/SiL (CL)								
7/15/54	31.4	32.8	27.8	2.30	2.46	115	----	
8/5/54	20.5	18.1	16.5	1.50	1.36	210	----	
8/25/54	27.1	20.3	16.7	1.98	1.52	207	----	
10/6/54	30.0	28.2	28.0	2.20	2.12	156	0.84	
10/29/54	29.7	27.3	23.1	2.17	2.05	165	----	
4/21/55	30.3	28.4	28.6	2.22	2 13	133	0.98	
5/18/55	23.0	26.4	25.9	1.68	1.98	214	NT	
6/7/55	17.7	25.7	24.4	1.30	1.93	220	----	
Site 149, Swift Co., Minn. Unclassified SL/SL (SC)								
7/15/54	42.4	22.3	13.2	2 04	1.78	156	----	
8/5/54	34.7	24.2	13.4	1.66	1.96	199	----	
8/25/54	37.8	17.5	10.8	1.81	1.40	230	----	
10/6/54	37.0	24.3	11.8	1.78	1.94	193	1.20	
10/30/54	47 4	22.5	11.4	2.2[illegible]	1.80	135	----	
4/22/55	45.5	21.3	12.2	2.18	1.70	208	0.90	
5/18/55	35.0	23.3	14.8	1.68	1.86	219	NT	
6/7/55	39.5	23.1	11.1	1.90	1.84	177	NT	

(Continued)

Note NT = no test.
* Vibrated remolding test.

Table B3c (Continued)

Lake States Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in Depth	12- to 18-in. Depth	Soil Moisture Content, in./6 in.: 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in
Site 150, Swift Co., Minn. Unclassified LS/S (SM)								
7/15/54	7.0	7.6	8.2	0.56	0.66	275	----	
8/5/54	8.0	6.8	5.2	0.58	0.69	300	----	
8/25/54	7.9	5.2	5.3	0.68	0.45	300	----	
10/6/54	11.1	11.6	8.0	0.69	1.00	293	NT	
10/30/54	12.1	9.2	7.1	0.38	0.73	258	----	
4/22/55	12.8	11.1	9.2	0.94	0.96	259	NT	
5/18/55	5.6	6.4	5.3	0.41	0.55	300	NT	
6/7/55	9.9	5.7	3.5	0.72	0.49	300	----	
Site 151, Kandiyohi Co., Minn. Unclassified SL/SL (CL)								
7/15/54	27.1	24.3	21.1	1.56	1.62	206	----	
8/5/54	19.3	12.6	11.4	1.11	0.84	300	----	
8/25/54	31.0	17.4	11.3	1.75	1.16	279	----	
10/7/54	21.0	27.1	15.0	1.24	1.30	288	NT	
10/30/54	29.7	22.3	20.4	1.71	1.48	254	----	
4/22/55	48.5	34.5	28.3	2.81	2.30	193	0.75	
5/18/55	16.7	15.9	16.3	0.96	1.06	289	NT	
6/7/55	30.3	20.9	18.6	1.74	1.39	245	----	
Site 152, Kandiyohi Co., Minn. Unclassified SL/SL (SM)								
7/15/54	8.7	9.5	12.3	0.60	0.67	300	----	
8/5/54	11.2	9.8	8.6	0.77	0.69	300	----	
8/25/54	13.2	12.2	7.57	1.24	0.86	300	----	
10/7/54	15.0	21.0	12.7	1.03	1.49	300	NT	
10/30/54	16.9	15.6	15.0	1.56	1.32	240	----	
4/22/55	23.0	21.5	22.6	1.57	1.73	204	NT	
5/18/55	9.4	12.4	12.5	0.64	0.88	300	NT	
6/7/55	10.0	6.1	3.5	0.68	0.49	300	----	
Site 153, Stearns Co., Minn. Unclassified SL/SL (SC)								
7/15/54	27.5	15.4	12.1	1.80	1.32	213	----	
8/5/54	4.2	4.3	3.2	0.27	0.37	300	----	
8/25/54	10.4	10.3	11.5	0.68	0.88	300	----	
10/7/54	13.8	7.2	12.1	0.90	0.62	263	NT	
10/30/54	26.2	16.8	12.2	1.71	1.44	222	----	
4/22/55	30.4	13.2	14.4	1.99	1.65	124	0.86	
5/13/55	11.1	8.7	8.7	0.72	0.75	300	NT	
6/7/55	21.5	12.0	6.4	1.41	1.20	283	----	
Site 154, Benton Co., Minn. Unclassified LS/SL (SM-SC)								
7/16/54	13.8	13.7	10.5	1.20	1.26	184	----	
8/5/54	8.8	8.4	6.2	0.77	0.77	300	----	
8/25/54	14.0	12.3	9.2	1.22	1.18	259	----	
10/7/54	16.6	15.4	11.3	1.44	1.41	226	NT	
10/30/54	18.3	15.2	12.0	1.59	1.40	100	----	
4/22/55	16.1	14.8	11.5	1.40	1.36	202	1.30	
5/19/55	9.0	10.5	7.5	0.78	0.96	300	NT	
6/7/55	11.8	10.6	6.5	1.03	0.97	279	----	
Site 155, Mille Lacs Co., Minn. Onamia SiL/L (ML)								
7/16/54	28.9	19.8	19.4	2.25	1.76	222	----	
8/6/54	27.9	17.4	15.6	2.18	1.54	269	----	
5/26/54	31.3	25.8	19.8	2.44	2.29	251	----	
10/7/54	30.4	19.8	18.7	2.37	1.76	231	0.90	
10/30/54	32.5	25.4	20.9	2.54	2.26	142	----	
4/22/55	FW	FW	FW	FW	FW	251	----	
5/19/55	25.3	23.4	18.0	1.37	2.08	300	NT	
5/8/55	30.6	21.3	15.0	2.39	1.89	270	----	
Site 156, Mille Lacs Co., Minn Milaca L/SiL (ML)								
7/16/54	28.0	20.0	18.8	2.08	1.81	174	----	
8/6/54	22.3	16.4	14.7	1.66	1.49	300	----	
8/26/54	27.3	20.1	18.7	2.03	1.82	267	----	
10/7/54	31.2	22.2	19.7	2.32	2.01	219	NT	
10/30/54	29.9	23.6	21.3	2.22	2.14	177	----	
4/22/55	32.5	21.8	21.3	2.42	1.98	209	0.59	
5/19/55	24.6	17.9	18.3	1.83	1.62	300	----	
6/8/55	26.4	19.6	19.5	1.96	1.78	220	----	
Site 157, Mille Lacs Co., Minn. Adolph SiL/SiL (CL)								
7/16/54	32.9	22.9	18.5	2.29	1.99	300	----	
8/6/54	23.4	21.4	21.0	1.63	1.86	300	----	
8/26/54	26.0	17.9	19.1	1.81	1.56	300	----	
10/7/54	33.8	22.2	25.0	2.35	1.93	215	0.68	
10/30/54	32.4	22.2	23.8	2.26	1.93	203	----	
4/22/55	36.4	27.3	31.1	2.53	2.43	117	0.74	
5/13/55	23.9	18.8	22.4	1.66	1.64	300	NT	
6/8/55	32.7	23.2	23.2	2.28	2.02	188	----	
Site 158, Kanabec Co., Minn. Greenbush SiL/SiL (ML)								
6/2/54	11.3	13.2	15.1	1.60	1.20	300	----	
8/6/54	8.0	11.2	9.9	0.66	1.01	300	----	
8/26/54	18.1	10.1	8.0	1.50	0.92	300	----	
10/7/54	15.7	14.8	10.5	1.30	1.34	300	NT†	
10/31/54	11.0	16.8	17.3	0.91	1.52	266	----	
4/22/55	19.7	16.7	10.8	1.63	1.51	300	NT†	
5/19/55	3.6	4.7	6.7	0.30	0.42	300	NT†	
6/8/55	15.8	11.5	10.0	1.31	1.04	300	----	
Site 159, Kanabec Co., Minn. Milaca SiL/SiL (ML)								
6/2/54	14.7	8.6	22.5	1.08	0.69	244	----	
8/6/54	23.0	16.7	13.1	1.68	1.34	300	----	
8/26/54	33.3	20.5	19.7	2.44	1.65	300	----	
10/7/54	32.2	23.5	21.1	2.36	1.89	288	NT	
10/31/54	35.8	20.1	19.8	2.62	1.62	268	----	
4/22/55	32.2	22.8	22.7	2.36	1.83	285	NT	
5/19/55	1.2	12.7	12.6	0.58	1.02	300	NT†	
6/8/55	29.9	19.6	15.6	2.19	1.58	300	----	
Site 160, Kanabec Co., Minn. Onamia SiL/SiL (ML)								
6/2/54	23.7	22.2	20.0	1.91	2.08	220	----	
8/6/54	19.7	15.4	16.9	1.58	1.44	300	----	
8/26/54	14.6	21.3	17.4	1.17	1.99	281	----	
10/7/54	25.0	21.4	17.6	2.01	2.00	242	NT	
10/31/54	25.2	19.3	18.1	2.03	1.81	226	----	
4/22/55	22.6	18.0	18.8	1.82	1.68	215	0.70	
5/13/55	11.3	13.0	14.4	0.91	1.22	300	NT	
6/8/55	21.4	18.5	13.2	1.72	1.73	288	----	
Site 161, Pine Co., Minn. Adolph SiL/SiL (ML)								
6/2/54	31.7	30.7	22.8	2.28	2.67	152	----	
8/6/54	19.6	11.6	7.9	1.41	1.01	300	----	
8/26/54	17.6	10.7	8.2	1.27	0.93	300	----	
10/8/54	19.8	13.0	11.4	1.43	1.13	300	NT	
10/31/54	26.7	18.7	13.8	1.98	1.63	279	----	
4/23/55	30.8	21.0	14.3	2.22	1.63	248	0.57	
5/19/55	20.0	14.6	12.4	1.44	1.27	300	NT	
6/8/55	27.3	17.1	11.9	1.97	1.49	297	----	
Site 162, Pine Co., Minn. Freer SiL/SiL (ML)								
6/2/54	40.2	28.2	25.8	2.77	2.28	112	----	
8/6/54	25.9	20.0	29.2	1.79	1.62	235	----	
8/26/54	36.1	23.9	25.2	2.49	2.75	147	----	
10/8/54	40.0	31.8	25.8	2.76	2.58	131	0.50	
10/31/54	41.7	32.0	29.9	2.88	2.58	178	----	
4/23/55	44.9	30.1	25.9	3.10	2.44	112	0.77	
5/19/55	26.5	20.0	26.0	1.83	2.27	187	1.04	
6/8/55	37.7	28.9	33.9	2.60	2.34	132	----	
Site 163, Pine Co., Minn. Milaca SiL/SiL (ML)								
6/2/54	25.0	21.1	19.4	1.83	1.89	254	----	
8/6/54	25.5	21.5	20.2	1.87	1.92	283	----	
8/26/54	29.3	25.5	23.8	2.14	2.28	240	----	
10/8/54	26.7	22.3	21.8	1.95	1.99	258	0.73	
10/31/54	28.4	23.6	19.3	2.08	2.11	247	----	
4/23/55	26.7	27.0	24.4	1.95	2.41	178	0.51	
5/19/55	26.7	23.6	23.3	1.95	2.11	272	0.74	
6/8/55	25.8	23.0	21.9	1.89	2.06	225	----	
Plowed before 4/23/55								

(Continued)

Note. NT = no test.
FW = free water.

† Measured 0- to 6-in. depth.

Table B3c (Concluded)

Lake States Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, in. 6 in.: 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 164, Pine Co., Minn. Onamia SIL/SIL (ML)								
6/2/54	33.5	24.4	22.7	2.89	2.09	206	----	
8/6/54	23.5	16.5	16.2	1.71	1.42	300	----	
8/26/54	24.2	21.8	20.6	1.82	1.87	300	----	
10/8/54	32.1	25.3	21.7	2.34	2.18	268	NT	
10/31/54	31.1	20.8	20.7	2.27	1.79	300	----	
4/23/55	33.8	23.1	22.4	2.45	1.99	246	NT	
5/20/55	17.2	14.5	16.0	1.25	1.25	300	NT	
6/8/55	25.3	20.5	22.6	1.85	1.76	300	----	
Site 165, Pine Co., Minn. Onamia SL/LS (SM)								
6/2/54	15.4	13.2	11.3	1.27	1.05	95	----	
8/6/54	11.4	3.8	5.5	0.74	0.30	175	----	
9/26/54	20.5	12.7	10.4	1.70	1.01	123	----	
10/8/54	20.1	13.9	12.0	1.66	1.10	95	NT	
10/31/54	20.8	13.0	11.0	1.72	1.03	155	----	
4/23/55	21.1	12.1	10.3	1.81	0.96	123	NT*	
5/20/55	14.7	9.8	9.7	1.22	0.79	214	----	
6/8/55	14.5	9.5	7.8	1.20	0.75	110	----	
Site 166, Pine Co., Minn. Omega SL/SL (ML)								
6/2/54	19.3	15.6	12.1	1.76	1.49	227	----	
8/6/54	10.6	9.7	11.7	0.93	0.72	300	----	
8/26/54	17.2	14.3	8.9	1.52	1.36	300	----	
10/8/54	13.5	15.3	12.1	1.19	1.52	300	NT	
10/31/54	13.5	15.3	10.6	1.63	1.52	300	----	
4/23/55	20.7	16.3	12.8	1.82	1.61	300	NT	
5/20/55	13.6	12.8	9.3	1.20	1.22	270	NT	
6/8/55	17.2	11.7	7.9	1.55	1.12	256	----	
Site 167, Pine Co., Minn. Cloquet SL/SL (SM)								
6/2/54	----	----	----	----	----	137	----	
8/6/54	25.8	16.5	14.5	2.01	1.56	137	----	
8/26/54	26.8	15.1	13.5	2.03	1.43	215	----	
10/8/54	28.2	17.8	10.5	2.25	1.69	210	NT	
10/31/54	25.3	18.2	14.2	2.02	1.73	183	----	
4/23/55	FW	FW	FW	FW	FW	153	----	5
5/20/55	24.1	15.4	13.4	1.88	1.46	286	NT	
6/8/55	23.5	15.4	14.9	2.30	1.46	213	----	
Site 168, Washburn Co., Wis. Unclassified LS/LS (SM)								
6/2/54	13.0	9.0	8.3	1.21	1.02	285	----	
8/6/54	10.8	8.2	7.1	1.01	0.87	300	----	
8/26/54	10.8	7.5	4.9	1.00	0.85	300	----	
10/8/54	12.2	9.6	9.9	1.13	1.02	300	NT	
11/1/54	13.9	7.7	4.3	1.23	0.92	300	----	
4/23/55	14.4	10.8	8.5	1.34	1.15	300	NT	
5/20/55	4.2	3.5	1.4	0.39	0.37	300	NT	
6/8/55	13.6	9.0	4.8	1.26	0.96	300	----	
Site 169, Washburn Co., Wis. Unclassified SL/LS (SM)								
6/2/54	13.8	13.7	9.5	1.53	1.22	246	----	
8/6/54	13.0	10.2	6.2	1.01	0.90	300	----	
9/26/54	25.5	10.6	6.0	1.97	0.94	300	----	
10/8/54	17.1	12.4	8.5	1.32	1.10	291	NT	
11/1/54	17.8	12.2	9.5	1.38	1.08	268	----	
4/23/55	20.2	12.6	9.5	1.56	1.12	274	NT	
5/20/55	12.0	7.5	6.3	0.93	0.67	300	NT	
6/8/55	21.3	15.4	11.1	1.65	1.37	297	----	
Site 170, Washburn Co., Wis. Unclassified SIL/L (ML)								
6/2/54	37.9	32.3	23.0	2.41	2.64	167	----	
8/6/54	30.4	23.5	18.4	1.93	1.92	142	----	
8/26/54	28.1	24.7	19.7	1.73	2.02	206	----	
10/8/54	33.6	29.2	20.6	2.14	2.38	153	0.89	
11/1/54	35.9	27.8	17.5	2.28	2.27	163	----	
4/23/55	43.9	33.8	23.8	2.73	2.76	148	0.66	
5/20/55	30.7	26.4	21.4	1.95	2.15	214	0.67	
6/18/55	38.0	29.4	21.6	2.42	2.40	118	----	

Note: NT = no test. * Vibrated remolding test.
FW = free water.

Table B3d

Soil Moisture Content and Strength Data of Survey Sites

Intermountain Region

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, in./6 in.: 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 1, Davis Co., Utah — Unclassified L/L (ML)								
6/30/54	35 6	24.8	21.9	2.11	1.76	162	----	
8/3/54	18.8	15.6	13.7	1.12	1.10	271	----	
8/31/54	13.3	11.8	11.8	0.79	0.84	281	----	
9/28/54	21.2	14.0	11.9	1.26	0.99	300	----	
10/7/54	24.1	13.2	12.0	1.43	0.93	280	----	
5/19/55	33.8	27.2	23.3	2.01	1.93	111	0.66	
5/31/55	35.4	26.6	23.7	2.10	1.88	144	1.62	
6/14/55	38.6	25.2	25.3	2.29	1.78	132	----	
Site 2, Davis Co., Utah — Unclassified SL/SL (ML)								
6/30/54	15.5	14.7	12.9	1.12	1.15	300	----	
8/3/54	4.4	4.4	2.8	0.32	0.34	300	----	
8/31/54	3.4	5.1	4.7	0.24	0.40	212	----	
9/28/54	17.3	8.0	4.2	1.25	0.62	300	----	
10/7/54	16.3	11.8	4.5	1.17	0.92	243	----	
6/14/55	20.9	16.8	15.6	1.50	1.31	229	----	
Site 3, Davis Co., Utah — Unclassified L/L (ML)								
6/25/54	12.6	14.6	19.5	0.93	1.10	300	----	
8/3/54	8.8	10.8	9.2	0.65	0.82	300	----	
8/31/54	2.7	6.2	7.5	0.20	0.47	300	----	
9/28/54	20.1	11.5	8.5	1.48	0.87	300	----	
10/7/54	22.3	11.6	8.4	1.65	0.88	273	----	
5/19/55	36.5	31.0	28.4	2.69	2.34	142	0.75†	
6/14/55	38.5	28.4	48.5	2.84	2.15	216	----	
Site 4, Davis Co., Utah — Unclassified L/L (CL)								
6/25/54	15.2	18.0	22.1	1.30	1.60	300	----	
8/3/54	5.4	9.4	10.0	0.55*	0.83	300	----	
8/31/54	6.2	6.0	8.1	0.53	0.53	300	----	
9/28/54	15.5	11.4	8.6	1.33	1.01	293	----	
10/7/54	17.6	14.5	9.3	1.51	1.29	254	----	
5/19/55	28.7	27.1	39.7	2.46	2.41	114	----	12
6/14/55	28.6	27.9	27.8	2.45	2.48	152	NT	
Site 5, Davis Co., Utah — Farmington SIL/SIL (CH)								
6/25/54	33.2	35.3	35.4	4.36	2.82	150	0.88	20
8/5/54	58.7	24.3	26.5	2.75	1.94	228	----	
8/26/54	33.7	22.3	24.8	1.58	1.78	300	----	
9/30/54	49.1	21.1	29.7	2.30	1.68	173	----	
10/2/54	35.8	35.0	38.4	4.48	2.79	144	0.31	6
3/17/55	34.7	42.9	40.3	4.43	3.42	127	0.82	1
4/12/55	38.9	42.1	41.1	4.16	3.36	162	----	4
4/28/55	----	----	----	----	----	----	----	1
5/16/55	73.2	38.5	40.0	3.43	3.07	137	----	12
Site 6, Davis Co., Utah — Ironton SIL/L (CL)								
6/28/54	18.4	10.8	12.3	1.42	0.77	300	----	
8/5/54	30.7	11.3	9.8	2.38	1.01	264	----	
8/26/54	10.3	11.3	12.1	0.84	1.01	300	----	
9/30/54	14.6	9.8	8.7	1.13	0.88	300	----	
3/17/55	33.6	24.2	22.8	2.60	2.16	119	0.94	
4/12/55	29.4	23.6	24.2	2.28	2.11	97	0.76	
4/28/55	33.1	25.4	24.5	2.56	2.27	104	0.69	12
5/16/55	18.9	20.3	22.7	1.46	1.81	172	----	DRY
Site 7, Davis Co., Utah — Timpanogas L/L (CL-ML)								
7/1/54	20.6	26.3	20.0	1.69	2.32	300	----	
8/5/54	18.1	6.5	6.5	1.49	0.56	300	----	
8/26/54	6.8	5.3	6.1	0.56	0.51	300	----	
9/30/54	7.0	6.8	7.5	0.58	0.59	300	----	
3/17/55	24.7	20.3	19.4	2.03	1.81	200	NT	
4/12/55	24.3	20.8	20.0	2.00	1.80	186	NT	
4/28/55	23.1	20.5	18.6	1.90	1.77	155	0.34	
5/16/55	13.7	17.2	16.8	1.13	1.49	276	NT	
Site 8, Salt Lake Co., Utah — Airport SL/SL (CL)								
6/29/54	8.9	12.7	17.6	0.83	1.26	300	----	
8/3/54	11.8	3.3	3.0	1.10	0.39	300	----	
8/31/54	2.8	7.4	13.2	0.26	0.73	300	----	
9/28/54	5.3	3.7	15.4	0.50	0.37	300	----	
3/15/55	18.0	13.5	17.5	1.68	1.34	300	0.35†*	
4/12/55	17.3	15.7	18.2	1.62	1.55	300	----	
4/28/55	16.0	12.9	16.5	1.50	1.28	300	----	
5/16/55	10.6	12.4	18.5	0.99	1.23	300	----	
Site 9, Salt Lake Co., Utah — Saltair SICL/SICL (CL)								
6/29/54	26.1	22.0	22.2	1.99	2.11	135	----	
8/3/54	23.5	19.7	20.0	1.72	1.89	235	----	
8/31/54	22.3	21.6	21.7	1.70	2.07	223	----	
9/28/54	23.1	20.1	20.8	1.76	1.93	225	----	
12/2/54	29.7	23.2	23.7	2.26	2.23	177	0.66	
3/15/55	----	----	----	----	----	98	----	3
3/31/55	31.6	23.9	24.0	2.41	2.29	137	0.60	18
4/12/55	35.7	25.6	24.8	2.72	2.46	113	----	12
4/28/55	----	----	----	----	----	----	----	1
5/10/55	27.6	23.0	23.0	2.26	2.21	170	----	31
Site 10, Salt Lake Co., Utah — Terminal SIL/SICL (CL)								
6/29/54	15.7	16.8	21.4	1.29	1.51	300	----	
8/3/54	8.7	15.2	18.4	0.72	1.37	300	----	
8/31/54	9.2	15.7	19.7	0.76	1.41	300	----	
9/28/54	10.2	14.5	17.2	0.84	1.30	300	----	
3/15/55	20.1	17.6	16.4	1.65	1.58	300	NT	
4/12/55	24.4	19.3	17.8	2.01	1.74	295	----	
4/28/55	19.3	19.1	23.7	1.59	1.72	300	----	
5/16/55	15.2	17.4	23.1	1.25	1.57	300	----	
Site 11, Salt Lake Co., Utah — Welby L/SL (CL-ML)								
6/29/54	18.7	18.5	21.8	1.73	1.75	300	----	
8/3/54	13.9	13.7	19.8	1.28	1.30	300	----	
8/30/54	13.2	14.5	20.3	1.21	1.37	300	----	
9/28/54	14.8	14.7	18.6	1.37	1.39	300	----	
12/3/54	24.3	18.4	20.2	2.25	1.74	176	0.48	
3/15/55	23.5	16.9	20.2	2.17	1.79	190	0.46	35
4/12/55	23.8	19.6	22.8	2.20	1.86	160	0.51	36
4/28/55	22.6	19.6	21.9	2.09	1.86	149	----	34
5/16/55	17.6	15.4	19.2	1.63	1.46	204	----	DRY
Site 12, Salt Lake Co., Utah — Taylorsville SIL/L (CL)								
6/29/54	21.6	16.5	17.0	1.87	1.47	300	----	
8/3/54	18.3	19.4	20.7	1.63	1.72	300	----	
8/31/54	15.3	15.3	16.9	1.32	1.41	300	----	
9/28/54	15.9	15.7	17.7	1.37	1.33	300	----	
3/15/55	Plowed and spread with fertilizer							
4/28/55	27.0	20.2	22.2	2.33	1.79	172	----	
5/15/55	26.2	20.8	20.0	2.26	1.85	203	----	
Plowed before 4/28/55. Dicked and harrowed before 5/16/55								
Site 13, Salt Lake Co., Utah — Taylorsville SIL/SIL (CL)								
6/29/54	16.7	21.3	15.6	1.22	1.87	300	----	
8/3/54	11.8	13.0	12.1	0.92	1.14	300	----	
8/31/54	11.3	12.2	13.5	0.83	1.07	300	----	
9/28/54	13.9	13.8	14.1	1.02	1.21	300	----	
3/15/55	23.0	21.6	20.3	1.75	1.83	300	0.52	
4/12/55	26.6	21.1	21.7	1.95	1.85	300	----	
4/28/55	24.0	16.3	23.0	1.76	1.43	300+	----	
5/16/55	19.0	18.3	20.7	1.39	1.60	300+	NT	
Site 14, Salt Lake Co., Utah — Taylorsville SIL/SIL (CL)								
6/29/54	22.2	18.3	20.1	1.81	1.60	300	----	
8/3/54	23.2	20.3	22.5	1.89	1.78	300	----	
8/31/54	16.8	20.8	23.0	1.37	1.52	300	----	
9/28/54	19.2	18.3	20.5	1.57	1.66	300	----	
3/15/55	27.9	25.6	25.4	2.25	2.24	206	0.66	
4/12/55	27.4	25.0	24.3	2.24	2.19	139	NT	
4/28/55	26.7	24.8	25.4	2.18	2.17	187	----	33
5/16/55	24.7	23.2	25.2	2.02	2.03	242	----	DRY

(Continued)

Note NT = no test.

* Vibrated remolding test.

† Measurement of 0- to 5-in. layer.

Table 834 (Continued)

Intermountain Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, in./6 in.: 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 15, Salt Lake Co., Utah — Terminal SiL/L (CL)								
6/30/54	26.8	24.1	17.6	2.22	2.08	300	----	
8/3/54	11.8	12.3	12.0	0.98	1.06	300	----	
8/31/54	15.9	12.4	8.8	1.32	1.07	300	----	
9/23/54	13.5	10.5	9.4	1.12	0.93	300	----	
3/16/55	29.3	27.1	27.8	2.43	2.34	136	0.26	19
4/12/55	29.0	30.0	32.0	2.40	2.59	136	0.14	10
4/28/55	33.3	28.2	29.4	2.80	2.44	122	0.96	5
5/16/55	32.4	28.2	30.6	2.68	2.44	130	----	12
Site 16, Utah Co., Utah — Kirkham SiCL/SiCL (CL)								
7/21/54	26.4	22.4	26.4	2.19	2.11	165	----	
8/4/54	25.8	21.9	23.7	2.14	2.06	144	----	
8/30/54	14.0	16.7	21.3	1.16	1.54	300	----	
9/29/54	24.8	25.0	26.0	2.05	2.06	105	----	
3/16/55	29.2	28.4	31.9	2.42	2.68	70	0.60	
4/13/55	29.1	28.5	18.4	2.41	2.68	93	0.70	
4/29/55	22.3	25.3	30.9	1.85	2.38	177	----	
5/17/55	28.6	25.4	27.3	2.37	2.39	120	0.61	
Irrigated before 9/29/54, 3/16/55, 4/13/55, 4/29/55, 5/17/55								
Site 17, Utah Co., Utah — Welby SiL/L (CL)								
7/21/54	8.2	8.8	10.7	0.69	0.75	300	----	
8/4/54	6.0	7.0	6.8	0.43	0.60	300	----	
8/30/54	4.3	8.6	8.6	0.31	0.73	300	----	
9/23/54	12.4	7.6	8.0	0.89	0.65	300	----	
3/16/55	33.3	23.1	21.2	2.40	1.97	143	0.54	
4/13/55	21.4	18.2	17.9	1.54	1.55	180	NT	
4/29/55	21.5	18.7	17.1	1.55	1.59	219	NT	
5/17/55	19.4	15.0	13.6	1.40	1.28	300	----	
Site 18, Utah Co., Utah — McBeth SiL/SiL (ML)								
7/21/54	13.9	13.9	17.5	1.04	1.05	300	----	
8/4/54	3.4	13.0	12.3	0.26	0.98	300	----	
8/30/54	9.8	12.1	11.9	0.73	0.91	300	----	
9/29/54	18.8	13.2	15.7	1.41	1.00	300	----	
3/16/55	32.1	30.3	32.3	2.41	2.29	171	0.70	
4/13/55	30.9	29.9	30.0	2.32	2.26	209	NT	
4/29/55	23.6	24.1	22.3	1.77	1.82	277	----	
5/17/55	24.4	24.5	13.0	1.83	1.85	300	----	
Site mowed before 9/29/54								
Site 19, Utah Co., Utah — Welby L/L (ML)								
7/21/54	45.1	42.4	40.0	3.19	2.98	113	----	
8/4/54	42.7	40.2	39.1	3.02	2.82	117	----	
8/30/54	29.6	33.8	33.6	2.10	2.37	---	----	
9/23/54	37.1	19.2	22.4	2.63	1.35	300	----	
3/16/55	35.2	40.3	41.3	2.70	2.33	156	NT	31
4/13/55	32.4	42.4	42.6	2.29	2.98	300	----	35
4/29/55	29.0	32.3	26.0	2.05	2.27	228	----	DRY
5/17/55	31.3	31.1	31.4	2.22	2.18	215	----	24
Site 20, Utah Co., Utah — Red Rock SiL/SL (CL-ML)								
7/21/54	14.2	13.5	10.8	1.41	1.24	300	----	
8/4/54	8.4	13.2	15.0	0.83	1.21	300	----	
8/30/54	10.6	13.7	13.1	1.05	1.26	300	----	
9/29/54	11.4	11.1	12.9	1.13	1.02	300	----	
3/16/55	22.2	21.1	27.9	2.20	1.94	232	NT	22
4/13/55	18.0	18.3	22.9	1.78	1.68	300	NT	DRY
4/29/55	16.6	18.1	22.8	1.64	1.66	300	----	DRY
5/17/55	15.6	16.3	19.9	1.54	1.50	300	----	27
Site 21, Utah Co., Utah — Kirkham L/L (CL)								
7/21/54	21.0	20.7	27.3	1.79	1.94	300	----	
8/4/54	19.9	21.3	26.2	1.70	2.04	300	----	
8/30/54	17.6	18.4	23.4	1.50	1.72	300	----	
9/23/54	23.1	21.3	25.9	1.97	1.97	177	----	
12/3/54	27.9	21.6	28.0	2.38	2.02	165	0.58	
3/16/55	30.2	24.6	29.9	2.57	2.30	131	0.48	
4/13/55	27.1	25.4	27.6	2.31	2.38	139	0.36	10
4/29/55	24.7	26.3	31.9	2.53	2.46	141	----	10
5/17/55	28.3	25.3	30.7	2.41	2.37	167	----	10
Site 22, Cache Co., Utah — Trenton SiL/SiL (CL)								
7/20/54	23.4	27.0	25.6	1.36	2.04	300	----	
8/9/54	31.9	27.7	30.0	1.86	2.09	300	----	
9/1/54	32.3	40.5	31.7	1.88	3.06	300	----	
10/11/54	51.2	37.4	33.1	2.98	2.83	179	----	
3/25/55	67.3	46.8	44.3	----	----	134	0.50	1
4/25/55	52.6	42.3	40.7	3.06	3.20	140	----	4
5/14/55	40.5	35.3	34.3	2.36	2.67	229	NT	20
6/2/55	50.0	41.1	39.3	2.91	3.11	177	---	8
Site 23, Cache Co., Utah — Millville SiL/SiL (CL)								
7/20/54	20.1	24.1	24.9	1.62	2.02	226	----	
8/9/54	20.0	21.8	31.2	1.61	1.83	300	----	
9/1/54	28.6	27.7	31.2	2.30	2.33	167	----	
10/11/54	27.3	23.0	29.5	2.15	2.44	189	----	
4/25/55	34.3	33.3	33.5	2.76	2.80	106	0.61	8
5/14/55	24.7	27.0	30.3	1.99	2.27	277	----	
6/2/55	35.2	31.9	31.9	2.82	2.68	162	----	
Site 24, Cache Co., Utah — Salt Lake SiL/SiL (ML)								
7/20/54	23.8	39.2	41.2	1.64	2.54	300	----	
8/9/54	35.3	59.4	62.9	2.44	3.85	300	----	
9/1/54	35.2	54.8	61.8	2.43	3.55	300	----	
10/11/54	40.4	61.0	64.5	2.79	3.75	142	0.72	
3/25/55	47.4	58.6	66.7	3.27	3.80	127	0.42	12
4/25/55	44.9	55.3	63.9	3.10	3.62	133	----	14
5/14/55	39.5	52.0	65.3	2.73	3.82	127	----	25
6/2/55	45.1	56.2	64.2	3.11	3.64	171	----	18
Site 25, Caribou Co., Idaho — Conda L/L (ML)								
7/6/54	6.2	8.1	9.3	0.42	0.56	300	----	
8/3/54	14.7	8.6	8.0	1.00	0.59	300	----	
9/1/54	6.4	8.5	8.1	0.43	0.59	300	----	
10/11/54	7.6	8.6	9.2	0.52	0.59	300	----	
3/13/55	18.8	19.5	21.1	1.27	1.35	179	----	
6/2/55	33.9	23.9	29.5	2.30	2.06	142	1.07	
3/25/55	Snowbound, 1 to 2 in. plus snow cover							
Site 26, Caribou Co., Idaho — Churchill L/SL (ML)								
7/6/54	14.3	14.8	17.6	0.82	1.05	300	----	
8/3/54	15.7	11.3	11.9	0.90	0.80	300	----	
9/2/54	12.2	8.0	10.6	0.70	0.57	300	----	
10/11/54	7.0	11.9	14.5	0.40	0.84	258	----	
3/25/55	Snowbound, 1 to 2 in. of snow							
5/13/55	43.2	35.7	44.4	2.83	2.53	166	0.94†	12
6/2/55	44.7	28.3	29.9	2.57	2.00	194	----	
Site 27, Caribou Co., Idaho — Walla Walla SiL/SiL (CL)								
7/6/54	9.8	8.8	10.9	0.80	0.75	300	----	
8/3/54	7.9	9.8	9.3	0.64	0.83	300	----	
9/2/54	10.1	8.7	9.4	0.82	0.74	300	----	
10/11/54	10.7	7.8	9.4	0.87	0.66	300	----	
3/25/55	Snowbound, 16 in. snow							
5/13/55	24.3	21.4	21.7	1.98	1.82	167	0.66	
6/2/55	32.6	26.9	23.9	2.66	2.23	108	0.37	
Site 28, Caribou Co., Idaho — Walla Walla SiL/SiL (CL)								
7/6/54	9.4	10.4	11.1	0.79	0.86	300	----	
8/3/54	9.2	9.2	10.1	0.77	0.82	300	----	
9/2/54	10.6	9.7	10.2	0.89	0.80	300	----	
10/11/54	11.1	10.1	11.1	0.93	0.84	300	----	
3/25/55	Snowbound, 4 ft snow (frozen)							
5/13/55	18.9	20.6	19.1	1.59	1.72	178	NT	
6/2/55	32.0	22.9	17.5	2.69	1.90	154	0.49†	

(Continued)

Note. NT = no test.
* Vibrated remolding test.
† Measurement of 0- to 3-in. layer.

Table B3d (Continued)

Intermountain Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, in. Basis: 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 29, Caribou Co., Idaho — Pitzville SiL/SiL (CL)								
7/6/54	9.0	8.3	7.7	0.65	0.70	300	----	
8/3/54	8.4	7.3	7.7	0.46	0.61	300	----	
9/2/54	8.2	7.0	7.4	0.45	0.59	300	----	
10/11/54	8.0	7.1	7.3	0.49	0.60	300	----	
3/25/55			Frozen					
5/12/55	16.9	16.0	12.9	1.23	1.34	287	NT	
6/2/55	28.4	22.1	20.6	1.92	1.92	132	0.48	
Site 30, Caribou Co., Idaho — Pitzville SiL/SiL (CL)								
7/6/54	7.5	7.8	8.1	0.54	0.61	300	----	
8/3/54	5.3	4.5	4.2	0.38	0.35	300	----	
9/2/54	5.3	7.0	7.2	0.38	0.55	300	----	
10/11/54	5.9	5.7	7.4	0.42	0.45	300	----	
3/25/55				Frozen				
4/25/55				Frozen				
5/13/55	11.9	14.0	14.1	0.86	1.10	300	----	
6/2/55	25.0	25.3	23.1	1.80	1.99	150	0.50	
Site 31, Caribou Co., Idaho — Hyrum CL/CL (CL)								
7/6/54	6.7	10.3	11.3	0.51	0.93	300	----	
8/3/54	6.6	11.4	10.3	0.51	1.03	300	----	
9/2/54	6.0	10.7	11.7	0.46	0.96	300	----	
10/11/54	5.6	9.2	7.2	0.43	0.47	NR	----	
3/25/55			Snowbound					
4/25/55			Snowbound					
5/13/55	15.4	19.4	19.0	1.18	1.75	208	----	
6/2/55			Road inaccessible					
Plowed before 10/11/54								
Site 32, Bannock Co., Idaho — Onyx SiL/SiL (ML)								
7/7/54	9.3	6.6	8.4	0.73	0.52	300	----	
8/10/54	3.7	5.3	6.3	0.29	0.42	300	----	
9/2/54	3.3	4.5	4.5	0.26	0.36	300	----	
10/12/54	4.0	4.6	5.2	0.31	0.36	300	----	
3/25/55	16.1	12.6	10.8	1.26	1.00	253	NT	
4/24/55	17.0	13.0	11.9	1.33	1.03	189	----	
5/13/55	7.7	8.3	9.0	0.60	0.66	300	----	
6/2/55	18.2	10.9	7.9	1.42	0.86	284	----	
Site 34, Bannock Co., Idaho — Portneuf SiL/SiL (ML)								
7/7/54	8.1	7.9	4.7	0.65	0.64	300	----	
8/10/54	5.1	7.0	9.0	0.35	0.56	300	----	
9/2/54	4.5	8.9	8.5	0.31	0.72	300	----	
10/12/54	5.7	8.8	9.5	0.39	0.71	300	----	
3/25/55	25.1	28.4	31.8	1.72	2.28	166	NT	
4/24/55	28.1	23.6	25.6	1.92	1.90	131	1.20	
5/13/55	12.5	13.5	19.5	0.86	1.09	281	----	
6/3/55	22.4	21.7	8.3	1.53	0.94	300	----	
Site 35, Bannock Co., Idaho — Portneuf SiL/SiL (ML)								
7/7/54	11.0	7.1	7.0	0.84	0.50	290	----	
8/10/54	4.0	7.4	9.1	0.37	0.54	300	----	
9/2/54	4.0	7.3	7.6	0.31	0.52	300	----	
10/12/54	4.1	6.9	6.7	0.31	0.48	300	----	
3/25/55	13.5	13.4	10.4	1.04	0.95	176	----	
4/24/55	14.4	12.2	11.5	1.11	0.86	108	----	
5/13/55	8.6	10.7	12.2	0.66	0.76	195	----	
6/3/55	16.9	12.3	11.1	1.30	0.87	210	----	
Site 36, Bannock Co., Idaho — Bannock SiL/SiL (CL-ML)								
7/7/54	16.2	13.8	26.4	1.53	1.85	300	----	
8/10/54	14.3	16.9	31.7	1.35	1.58	300	----	
9/3/54	(Irrigation, site flooded)							
10/12/54	22.7	23.1	32.7	2.14	2.16	201	----	
3/25/55	22.9	24.7	49.0	2.16	2.31	300	----	
4/24/55	16.0	23.4	33.5	1.51	2.19	218	0.48	
5/13/55	15.5	21.3	29.3	1.46	1.99	300	----	
6/3/55	21.3	21.4	32.7	2.00	2.00	300+	----	
Irrigated after 7/7/54 and 9/3/54. Plowed after 4/24/55								
Site 37, Fingham Co., Idaho — Delco L/SiL (CL-ML)								
7/7/54	5.9	6.8	5.6	0.54	0.54	300	----	
8/10/54	2.5	5.2	5.7	0.21	0.41	300	----	
9/3/54	4.2	4.7	5.4	0.36	0.37	300	----	
10/12/54	2.3	4.1	5.8	0.17	0.37	300	----	
3/24/55	11.0	11.4	9.0	0.93	0.90	285	----	
4/24/55	10.8	11.0	10.0	0.91	0.87	200	NT	
5/13/55	6.6	9.8	11.2	0.56	0.70	300	----	
6/3/55	11.3	7.7	8.2	0.96	0.61	300	----	
Site 38, Bingham Co., Idaho — Delco SiL/SiL (CL)								
7/7/54	10.7	10.1	11.2	0.92	0.93	300	----	
8/10/54	8.8	8.2	9.0	0.76	0.76	300	----	
9/3/54	9.4	9.9	9.5	0.81	0.91	300	----	
10/12/54	7.6	10.8	9.9	0.65	1.00	300	----	
3/24/55	19.3	19.0	15.0	1.66	1.76	276	----	
4/24/55	17.6	15.0	12.4	1.51	1.39	300	----	
5/13/55	10.1	11.2	11.7	0.87	1.03	300	----	
6/3/55	23.4	21.1	21.5	2.04	1.95	199	0.66	
Irrigated before 6/3/55								
Site 39, Bingham Co., Idaho — Sagemoor SiL/SiL (CL)								
7/7/54	21.0	25.3	25.5	1.86	2.28	300	----	
8/10/54	13.0	14.6	21.4	1.15	1.31	300	----	
9/3/54	19.9	21.4	24.0	1.77	1.93	300	----	
10/12/54	17.8	18.9	25.4	1.58	1.70	300	----	
3/24/55	19.2	20.3	27.5	1.70	1.83	300	----	
4/24/55	20.6	21.9	23.2	2.03	1.97	300	NT	
5/12/55	16.7	23.3	23.0	1.48	2.10	300	----	
6/3/55	18.8	20.2	23.0	1.67	1.82	300+	----	
Site 40, Bingham Co., Idaho — Sagemoor L/L (ML)								
7/7/54	10.5	10.2	9.0	0.96	0.94	300	----	
8/10/54	14.1	15.5	20.6	1.29	1.42	300	----	
9/3/54	20.5	18.6	24.0	1.88	1.71	280	----	
10/12/54	11.5	10.4	12.1	1.06	0.95	300	----	
3/24/55	25.3	20.9	21.0	2.32	1.92	300	----	
4/24/55	15.8	15.4	18.0	1.45	1.41	330	NT	
5/12/55	10.1	11.9	10.9	0.93	1.09	300+	----	
6/3/55	14.8	14.4	19.0	1.36	1.32	300+	----	
Irrigated before 8/10/54 and 9/3/54								
Site 41, Bingham Co., Idaho — Fingal SL/SL (SM)								
7/7/54	16.3	18.5	18.1	1.58	1.89	169	----	
8/10/54	15.4	17.2	17.2	1.50	1.75	147	----	
9/3/54	14.8	17.9	17.4	1.44	1.83	300	----	
10/12/54	16.5	15.1	16.6	1.60	1.54	178	----	
3/24/55	20.4	23.3	26.6	1.98	2.38	172	----	15
4/24/55	22.9	22.8	23.5	2.23	2.33	57	0.40	12
5/12/55	16.4	18.2	19.9	1.59	1.86	92	----	17
6/3/55	17.8	18.9	21.5	1.73	1.93	83	----	18
Site 42, Bingham Co., Idaho — Sagemoor SiL/SiL (CL)								
7/7/54	15.0	22.9	26.6	1.18	1.80	300	----	
8/10/54	16.1	21.1	21.9	1.26	1.66	300	----	
9/3/54	12.5	14.5	18.0	0.98	1.14	300	----	
10/12/54	15.3	22.3	25.5	1.20	1.75	300	----	
3/24/55	33.9	29.5	29.7	2.66	2.32	300	----	
4/24/55	25.8	29.4	32.5	2.03	2.31	266	NT	
5/12/55	14.1	26.7	26.7	1.11	2.10	300+	----	
6/3/55	19.7	18.1	22.9	1.55	1.42	300+	----	
Irrigated before 8/10/54 and 10/12/54								
Site 43, Bingham Co., Idaho — Fingal LS/LS (SM)								
7/8/54	10.9	15.8	19.7	0.95	1.55	220	----	
8/10/54	11.9	16.3	19.5	1.04	1.60	223	----	
9/3/54	10.9	18.9	21.1	1.48	1.86	233	----	
10/12/54	17.8	15.7	17.0	1.56	1.54	170	----	
3/24/55	16.0	20.4	22.6	1.47	2.01	300	1.12	
4/24/55	11.4	14.6	16.9	1.00	1.44	240	0.78	
5/12/55	13.8	16.7	20.5	1.21	1.64	243	----	
6/3/55	11.9	15.0	15.2	0.98	1.48	215	----	

(Continued)

Note. NT = no test.
* Vibrated remolding test.

Table B3d (Continued)

Intermountain Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, in./6 in.: 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site [illegible], Bingham Co., Idaho — Blackfoot L/S (CM)								
7/8/54	21.7	19.9	20.6	1.84	1.91	300	----	
8/10/54	31.1	21.4	24.2	2.63	2.05	300	----	
9/2/54	33.6	22.0	22.4	2.84	2.11	275	----	
10/12/54	25.6	22.6	29.4	2.17	2.17	254	----	
3/24/55		Frozen						
4/24/55	18.9	16.6	16.4	1.60	1.59	300	0.94	34
5/12/55	18.1	14.6	13.3	1.52	1.40	300	NT	DRY
6/3/55	16.7	19.6	17.2	1.41	1.88	254	----	18
Site 45, Bingham Co., Idaho — Bannock L/SiL (ML)								
7/8/54	12.2	14.0	17.3	1.05	1.34	223	----	
8/10/54	6.8	5.1	6.9	0.59	0.49	300	----	
9/2/54	6.6	5.5	9.9	0.57	0.53	300	----	
10/12/54	6.3	5.7	5.4	0.54	0.55	300	----	
3/24/55	18.5	11.3	19.3	1.60	1.08	300	NT	
4/24/55	19.5	16.0	17.5	1.68	1.54	300	NT	
5/12/55	8.6	10.7	15.8	0.74	1.03	300+	----	
6/3/55	21.1	19.2	19.8	1.82	1.84	171	0.44	
Irrigated before 6/3/55								
Site 46, Bingham Co., Idaho — Beverly L/SL (ML)								
7/8/54	11.2	12.7	15.2	0.95	1.22	300	----	
8/10/54	16.8	15.4	16.8	1.43	1.48	300	----	
9/2/54	16.9	15.8	18.5	1.44	1.52	300	----	
10/12/54	17.3	14.1	15.1	1.47	1.35	289	----	
3/24/55	27.4	16.3	14.8	2.33	1.56	300	NT	
4/24/55	24.9	16.6	17.7	2.12	1.59	274	NT	
5/12/55	11.7	12.4	15.1	1.00	1.19	291	----	
6/3/55	27.1	19.3	18.6	2.31	1.85	230	0.78	
Irrigated before 8/10/54, 9/2/54, 10/12/54, and 6/3/55								
Site 47, Bonneville Co., Idaho — Bannock SiL/SiL (CL-ML)								
7/8/54	21.3	19.8	21.8	1.97	2.00	191	----	
8/11/54	17.0	18.5	20.9	1.57	1.96	300	----	
9/8/54	20.0	21.1	23.1	1.85	2.13	198	1.03	
10/13/54	13.1	11.3	12.1	1.21	1.14	300	----	
3/24/55	20.9	17.1	13.4	1.93	1.72	---	----	
4/23/55	16.0	15.1	15.0	1.48	1.52	300	----	
5/12/55	11.9	12.8	12.7	1.10	1.29	300+	NT	
6/3/55	20.8	15.2	8.3	1.92	1.53	280	----	
Irrigated before 7/8/54 and 6/3/55								
Site 48, Bonneville Co., Idaho — Paul SiL/SiL (CL)								
7/8/54	6.0	8.9	8.0	0.49	0.74	300	----	
8/11/54	6.9	9.4	9.2	0.56	0.78	300	----	
9/8/54	7.8	9.8	8.5	0.64	0.81	300	----	
10/3/54	10.0	8.4	9.4	0.82	0.70	300	----	
3/24/55	17.9	14.1	9.8	1.46	1.17	---	----	
4/23/55	16.8	18.3	16.7	1.37	1.52	246	NT	
5/12/55	14.5	15.1	12.6	1.18	1.25	300	----	
6/3/55	24.0	19.7	12.5	1.96	1.63	239	0.70†	
Site 49, Bonneville Co., Idaho — Bannock SL/SL (CL)								
7/8/54	11.7	11.3	13.1	1.03	1.06	300	----	
8/11/54	19.3	18.5	19.6	1.70	1.73	173	----	
9/8/54	16.4	20.2	22.6	1.45	1.89	185	1.13	
10/13/54	10.4	11.9	13.0	0.92	1.11	254	----	
4/23/55	14.8	13.8	15.9	1.31	1.39	300	NT	
5/12/55	8.5	10.1	12.1	0.75	0.95	300+	----	
6/3/55	22.2	18.3	19.9	1.96	1.71	201	----	
Irrigated before 8/11/54 and 9/8/54								
Site 50, Bonneville Co., Idaho — Portneuf SiL/SiL (ML)								
7/8/54	4.4	5.2	6.6	0.39	0.46	300	----	
8/11/54	3.7	3.9	4.5	0.33	0.34	300	----	
9/8/54	3.5	7.0	4.9	0.31	0.62	300	----	
10/13/54	6.1	4.5	4.4	0.54	0.40	300	----	
4/23/55	15.5	13.4	11.4	1.38	1.18	300	NT	
5/12/55	5.8	9.5	11.7	0.52	0.84	300+	----	
6/3/55	18.0	10.9	7.9	1.60	0.96	300+	----	
Site 51, Bonneville Co., Idaho — Portneuf SiL/SiL (ML)								
7/8/54	2.4	7.6	6.8	0.21	0.60	300	----	
8/11/54	3.2	5.3	5.8	0.27	0.42	300	----	
9/8/54	4.2	6.5	6.3	0.36	0.51	300	----	
10/13/54	3.9	4.6	6.2	0.33	0.36	300	----	
3/24/55	29.1	14.9	8.3	2.50	1.18	---	----	
4/23/55	13.0	13.5	12.0	1.12	1.07	300+	NT	
5/12/55	7.2	11.5	12.3	0.62	0.91	300	NT	
6/3/55	17.6	15.0	9.0	1.51	1.19	300	----	
Site 52, Bingham Co., Idaho — Portneuf SiL/SiL (CL)								
7/8/54	7.4	10.7	8.7	0.59	0.89	300	----	
8/11/54	4.6	7.4	6.6	0.36	0.61	300	----	
9/8/54	4.9	7.5	8.2	0.36	0.62	300	----	
10/13/54	6.9	6.5	6.2	0.55	0.57	300	----	
3/23/55	26.0	14.3	11.8	2.11	1.18	---	----	
4/23/55	12.7	15.2	14.2	1.01	1.26	300+	NT	
5/12/55	12.1	14.2	14.4	0.96	1.18	300	----	
[illegible]/55	12.0	12.4	12.1	0.95	1.03	300	----	
Site 53, Bingham Co., Idaho — Portneuf L/SiL (CL)								
7/8/54	9.1	8.8	10.0	0.75	0.72	300	----	
8/11/54	4.1	7.8	7.3	0.34	0.64	300	----	
9/8/54	3.3	7.0	6.8	0.27	0.57	300	----	
10/13/54	4.6	7.1	7.5	0.38	0.58	300	----	
4/23/55	9.3	14.6	13.1	0.77	1.20	300	----	
5/12/55	10.4	12.7	11.3	0.86	1.04	300	----	
6/3/55	10.2	9.5	9.4	0.84	0.78	300	----	
Site 54, Butte Co., Idaho — Unclassified SiL/SiL (ML)								
7/9/54	8.1	5.[illegible]	6.7	0.51	0.47	300	----	
8/11/54	[illegible].9	[illegible].2	9.[illegible]	0.29	0.62	300	----	
9/9/54	3.[illegible]	[illegible]	[illegible].8	0.26	0.49	300	----	
10/14/54	3.7	6.3	[illegible].2	0.26	0.48	300	----	
4/23/55	[illegible].7	12.3	11.4	[illegible].11	0.94	248	----	
5/12/55	9.5	[illegible].9	10.4	0.72	0.80	300	NT	
6/4/55	7.4	7.8	9.0	0.56	0.59	300	----	
Site 55, Butte Co., Idaho — Unclassified SiL/SiL (ML)								
7/9/54	28.0	25.9	25.6	2.39	2.19	193	----	
8/11/54	15.6	18.2	21.9	1.28	1.64	300	----	
9/9/54	22.3	28.4	28.1	2.65	2.40	171	2.00	
10/14/54	22.5	21.9	22.8	1.85	1.85	277	----	
4/23/55	23.1	22.5	21.3	1.90	1.90	212	NT	
5/12/55	17.7	18.9	20.0	1.45	1.60	300	NT	
6/4/55	22.5	23.2	23.8	1.85	1.96	275	----	
Site 56, Butte Co., Idaho — Unclassified SiL/SiL (CL)								
7/9/54	20.0	19.8	21.6	1.46	1.52	300	----	
8/11/54	19.5	19.7	21.6	1.42	1.51	300	----	
9/9/54	17.5	20.7	23.5	1.28	1.59	283	----	
10/14/54	17.6	28.7	30.2	1.29	2.20	209	----	
4/23/55	33.1	30.3	32.0	2.42	2.50	134	0.77	
5/12/55	28.4	27.6	29.1	2.08	2.12	169	0.75	
6/4/55	22.1	26.2	25.4	1.62	2.01	233	----	
Site 57, Butte Co., Idaho — Unclassified L/SL (SC)								
7/9/54	5.[illegible]	8.1	7.8	0.52	0.77	300	----	
8/11/54	2.8	5.8	5.8	0.27	0.55	300	----	
9/9/54	3.8	5.0	6.6	0.36	0.48	300	----	
10/14/54	3.7	5.1	7.3	0.35	0.49	300	----	
4/23/55	9.1	11.2	9.4	0.87	1.07	300	NT	
5/12/55	8.6	11.9	9.2	0.82	1.14	300	NT	
6/4/55	7.3	10.[illegible]	8.3	0.70	0.99	300	----	

(Continued)

Note. NT = no test.

† Measurement of 0- to 6-in. layer.

Table 13d (Continued)
Intermountain Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, in./6 in.: 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index 0- to 12-in. Depth	Remolding Index 0- to 12-in. Depth	Depth to Water Table in.
Site 58, Blaine Co., Idaho — Unclassified L/L (ML)								
7/9/54	12.1	11.8	20.0	0.81	0.80	300	----	
8/12/54	10.7	8.3	14.7	0.71	0.56	300	----	
9/9/54	9.7	8.2	18.0	0.65	0.56	300	----	
10/14/54	13.2	16.5	20.2	0.88	1.12	213	NT	
5/11/55	21.7	23.1	25.9	1.45	1.57	175	NT	
6/4/55	19.4	20.9	22.9	1.29	1.42	221	----	
Site 59, Blaine Co., Idaho — Unclassified L/L (CL)								
7/9/54	9.5	9.9	13.2	0.81	0.94	300	----	
8/12/54	8.1	10.2	10.5	0.69	0.97	300	----	
9/9/54	5.2	9.2	9.2	0.44	0.87	300	----	
10/14/54	5.3	7.9	9.7	0.45	0.75	300	----	
5/11/55	20.7	20.2	20.6	1.76	1.91	248	NT	
6/4/55	14.5	17.5	17.5	1.24	1.66	387	----	
Site 60, Blaine Co., Idaho — Unclassified SIL/SIL (MH)								
7/9/54	38.0	53.1	69.4	1.93	2.61	173	----	
8/12/54	20.0	39.5	64.9	1.10	1.94	163	----	
9/9/54	14.9	10.7	47.6	0.82	0.53	188	----	
10/14/54	20.7	29.2	69.5	1.14	1.44	172	----	
5/12/55	63.2	64.9	80.8	3.49	3.19	116	0.44	19
6/4/55	57.3	61.5	74.4	3.16	3.03	114	0.47	
Site 61, Gooding Co., Idaho — Gooding L/L (CL)								
7/11/54	10.7	11.9	7.1	0.72	1.23	300	----	
8/12/54	10.4	8.6	14.8	0.97	0.89	300	----	
9/14/54	4.1	5.9	6.5	0.38	0.61	300	----	
10/14/54	13.0	5.8	6.3	1.22	0.70	300	----	
3/22/55	16.6	15.8	14.7	1.55	1.65	300	0.45 †	
4/21/55	16.2	16.9	18.6	1.52	1.74	300	NT	
5/10/55	9.5	13.1	16.3	0.89	1.35	300	----	
6/5/55	6.2	6.8	10.0	0.58	0.70	300+	----	
Site 62, Gooding Co., Idaho — Gooding LS/S (SM)								
7/11/54	1.6	2.1	3.3	0.15	0.19	300	----	
8/12/54	0.7	2.4	4.1	0.06	0.22	300	----	
9/14/54	3.4	1.8	2.7	0.31	0.16	300	----	
10/14/54	5.7	1.7	3.0	0.52	0.16	300	----	
3/22/55	8.5	7.7	7.8	0.78	0.70	245	1.10*	
4/21/55	5.0	5.4	5.0	0.46	0.49	256	1.15*	
5/10/55	3.8	3.8	3.1	0.35	0.35	300	----	
6/5/55	2.6	3.6	4.3	0.24	0.33	300	----	
Site 63, Gooding Co., Idaho — Portneuf L/SIL (CL)								
7/11/54	6.3	6.8	8.6	0.48	0.59	300	----	
8/12/54	4.6	4.9	8.7	0.35	0.43	300	----	
9/14/54	6.7	9.2	11.2	0.51	0.80	300	----	
10/14/54	9.5	8.6	5.9	0.72	0.75	300	----	
3/22/55	14.6	13.9	15.2	1.11	1.21	300	NT	
4/21/55	16.1	14.3	12.7	1.23	1.24	280	----	
5/10/55	9.6	9.7	12.7	0.73	0.84	300	----	
6/5/55	6.2	6.6	10.1	0.47	0.57	300	----	
Site 64, Gooding Co., Idaho — Portneuf L/SIL (ML)								
7/11/54	6.1	5.6	6.2	0.52	0.46	300	----	
8/12/54	4.3	2.2	6.5	0.37	0.18	300	----	
9/10/54	2.0	4.4	6.3	0.17	0.36	300	----	
10/14/54	10.5	5.1	4.6	0.89	0.42	300	----	
3/22/55	7.8	11.5	8.3	0.66	0.95	162	NT	
4/21/55	10.3	8.8	10.8	0.88	0.73	204	NT	
5/10/55	7.8	8.8	9.2	0.66	0.73	300	----	
6/5/55	4.5	6.2	6.8	0.38	0.51	300+	----	
Site 65, Gooding Co., Idaho — Minidoka L/L (CL-ML)								
7/11/54	7.5	10.1	16.5	0.66	0.87	300	----	
8/12/54	5.6	11.8	12.5	0.49	1.02	300	----	
9/10/54	8.2	12.4	19.5	0.72	1.07	300	----	
10/14/54	12.2	7.3	14.1	1.08	0.63	300	----	
3/22/55	14.5	14.6	17.9	1.28	1.26	246	NT	
4/21/55	12.3	12.6	18.4	1.08	1.08	300	NT	
5/10/55	9.5	13.6	16.1	0.84	1.18	300+	----	
6/5/55	6.5	7.8	13.5	0.57	0.67	300+	----	
Site 66, Gooding Co., Idaho — Portneuf SIL/SIL (CL)								
7/11/54	1.8	6.8	9.4	0.15	0.56	300	----	
8/12/54	2.6	8.2	8.6	0.21	0.68	300	----	
9/10/54	2.7	8.5	8.8	0.22	0.70	300	----	
10/14/54	7.2	8.3	7.5	0.59	0.69	300	----	
3/22/55	11.2	11.6	9.4	0.92	0.96	279	----	
4/21/55	10.3	13.1	8.7	0.85	1.08	276	NT	
5/10/55	7.1	12.6	11.5	0.58	1.04	300	----	
6/5/55	3.3	11.9	10.7	0.27	0.99	300	----	
Site 67, Elmore Co., Idaho — Chilcott SIL/SIL (CL)								
7/11/54	11.6	13.6	12.8	0.95	1.04	300	----	
8/12/54	5.9	14.2	11.5	0.48	1.09	300	----	
9/10/54	6.5	13.0	11.4	0.53	1.00	300	----	
10/14/54	9.4	11.6	13.9	0.77	1.12	300	----	
3/22/55	17.2	17.7	15.2	1.40	1.36	278	0.67†	
4/21/55	20.6	22.3	23.9	1.68	1.71	263	NT	
5/10/55	12.8	15.5	13.7	1.04	1.09	281	----	
6/5/55	4.9	16.0	12.6	0.40	1.22	300	----	
Site 68, Elmore Co., Idaho — Power SIL/SIL (CL)								
7/11/54	5.4	17.3	17.4	0.29	1.37	300	----	
8/12/54	2.9	9.2	10.6	0.24	0.73	300	----	
9/10/54	6.4	9.7	12.6	0.54	0.77	300	----	
10/14/54	8.1	12.3	13.7	0.68	0.97	300	----	
3/22/55	17.6	17.5	23.8	1.48	1.39	200	NT	
4/21/55	19.5	20.4	22.6	1.64	1.62	300	NT	
5/10/55	10.4	15.5	20.1	0.87	1.22	300	----	
6/5/55	5.4	9.5	17.0	0.45	0.75	300	----	
Site 69, Elmore Co., Idaho — Unclassified L/L (CL-ML)								
7/11/54	9.2	11.6	16.2	0.79	0.97	300	----	
8/12/54	7.1	11.6	11.5	0.61	0.97	300	----	
9/10/54	3.4	7.3	11.9	0.29	0.61	300	----	
10/14/54	8.5	7.7	6.7	0.73	0.65	300	----	
3/22/55	19.0	15.4	11.8	1.63	1.29	300	NT	
4/21/55	21.6	19.4	16.4	1.85	1.63	300	NT	
5/10/55	13.9	13.7	14.0	1.19	1.15	300	----	
6/5/55	6.9	9.5	10.6	0.59	0.80	300	----	
Site 70, Boise Co., Idaho — Kilmerque SL/SL (ML)								
7/12/54	6.9	6.9	6.9	0.67	0.74	300	----	
8/13/54	3.9	6.3	6.0	0.38	0.68	300	----	
9/13/54	3.1	6.5	5.5	0.30	0.70	300	----	
10/15/54	7.6	6.3	6.4	0.73	0.68	300	----	
4/22/55	23.5	19.8	18.3	2.27	2.13	174	0.30	
5/11/55	14.9	13.9	13.4	1.44	1.49	300	NT	
6/5/55	14.7	12.2	11.2	1.42	1.42	300	----	
Site 71, Boise Co., Idaho — Moscow SL/SL (SM)								
7/12/54	3.0	5.4	5.2	0.29	0.54	300	----	
8/13/54	1.5	2.8	3.1	0.15	0.28	300	----	
9/13/54	2.1	3.4	3.4	0.20	0.34	300	----	
10/15/54	4.3	2.8	3.2	0.42	0.28	300	----	
4/22/55	15.7	14.1	13.4	1.53	1.40	95	NT	
5/11/55	11.1	10.1	9.1	1.08	1.01	161	NT	
6/5/55	8.0	7.2	7.8	0.78	0.72	300	----	

(Continued)

Note: NT = no test.
* Vibrated remolding test.
† Measurement of 0- to 6-in. layer.

Table B3d (Continued)

Intermountain Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, in./6 in.: 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 72, Boise Co., Idaho — Sweet SL/SL (SC)								
7/12/54	3.1	5 9	5.9	0.29	0.55	300	----	
8/13/54	1.8	3.0	4.1	0.17	0.28	300	----	
9/13/54	1.9	3.8	3.8	0.17	0.36	300	----	
10/15/54	5.4	4.2	5.2	0.51	0.39	300	----	
4/21/55	19.3	18.7	17.3	1.81	1.75	78	0.33	
5/11/55	10.9	13.9	16.3	1.02	1.30	139	1.43	
6/5/55	5 0	6.5	10.1	0.47	0.61	300	----	
Site 73, Ada Co., Idaho — Sweet L/SL (CL)								
7/12/54	5.1	6.1	6.8	0.47	0.56	300	----	
8/13/54	4.6	6.3	5.1	0.43	0.58	300	----	
9/13/54	7.6	5.8	6.0	0.71	0.54	300	----	
10/15/54	6.4	5.2	5.3	0.60	0.48	300	----	
4/21/55	22.3	20.8	16.7	2.12	1.92	76	0.38	
5/11/55	15.0	15.7	13.9	1.40	1.45	118	0.86	
6/5/55	7.7	11.0	11.2	0.72	1.02	300	----	
Site 74, Ada Co., Idaho — Unclassified SiL/SiL (ML)								
7/12/54	10.5	12 6	16.5	0.70	0.82	300	----	
8/13/54	7.1	15.3	18.0	0.47	0.99	300	----	
9/13/54	5.8	13 5	11.4	0.39	0.27	300	----	
10/15/54	11 4	11 6	14.1	0.76	0.75	300	----	
3/23/55	18.8	24 0	18.6	1 25	1.56	217	NT	
4/21/55	28.1	26.6	25.4	1.87	1.72	163	0.79†	
5/11/55	16 0	21 1	22.0	1.07	1.37	300	----	
6/5/55	11.9	13.8	16.1	0.79	0.89	300	----	
Site 75, Ada Co., Idaho — Chilcott SiL/SiL (CL)								
7/14/54	3.3	9.4	17.4	0.28	0.80	300	----	
8/13/54	4.5	7.8	2.8	0.38	0.66	300	----	
9/13/54	4.0	9.2	17.1	0.33	0.78	300	----	
10/15/54	4.6	5.0	16.3	0.38	0.42	300	----	
3/23/55	19.0	15.7	21.1	1.58	1.33	300	NT	
4/21/55	24.7	22.6	20.5	2.06	1.91	300	NT	
5/11/55	12.9	20.1	20.9	1.08	1.70	300	----	
6/5/55	6.5	12.6	22.3	0.54	1.07	300	----	
Site 76, Ada Co., Idaho — Falk SiL/SiL (CL-ML)								
7/14/54	12.8	15.7	11.9	1.04	1.43	300	----	
8/13/54	9.0	6.8	7.4	0.73	0.82	300	----	
9/13/54	3.9	8.0	5.3	0.32	0.73	173	----	
10/15/54	30.1	25.0	23.8	2.46	2.28	125	0.47	18
3/23/55	32.9	27.7	17.7	2.68	2.53	196	----	DRY
4/21/55	28.7	25.0	19 7	2.34	2.28	144	0.34	36
5/11/55	21.6	18.2	13.8	1.76	1.66	180	----	
6/5/55	12.4	10.8	11.5	1.01	0.98	300	----	36
Irrigated before 10/15/54								
Site 77, Valley Co., Idaho — Unclassified SL/SL (SM)								
7/13/54	26.7	29.3	25.1	1.71	2.04	181	----	
8/13/54	13.1	10.7	7.8	0.84	0.74	300	----	
9/10/54	10.7	6.6	4.4	0.69	0.46	300	----	
10/15/54	10.0	5.6	4.0	0.64	0.39	300	----	10
5/10/55	44.3	40.7	40.2	2.84	2.83	148	0.30	11
6/6/55	36.1	37.2	39.7	2.32	2.59	191	0.45	24
Site 78, Jerome Co., Idaho — Portneuf SL/SL (SM-SC)								
7/10/54	10 1	14.2	19.9	1.00	1.47	300	----	Flooded
8/16/54	21.3	20 2	17.0	2.11	2.10	251	----	
9/14/54	13.3	11.6	17.3	1.32	1.20	300	----	
10/17/54	10.1	6.7	12.6	1.00	0.70	300	----	
3/22/55	13.1	17.1	11.3	1.30	1 77	300	NT	
4/20/55	15.5	11.6	13.9	1.53	1.20	300	----	
5/9/55	8.5	9.6	15.3	0.84	1.00	300	----	
6/4/55	17 8	16.3	20.7	1.76	1.69	300	NT	
Site 79, Jerome Co., Idaho — Portneuf SL/SCL (ML)								
7/10/54	20.5	18.9	17.1	1.89	1.91	280	----	
8/16/54	18.4	16.7	16.7	1.70	1.68	241	----	
9/14/54	15.7	16.6	13.9	1.45	1.67	300	----	
10/17/54	12.1	10.4	9.4	1.12	1.05	300	----	
3/22/55	15.8	13.6	11.4	1.46	1.39	300	NT	
4/20/55	15.4	12.8	11.9	1.42	1.29	300	NT	
5/9/55	10.7	11.6	8.1	0.99	1.17	300	----	
6/4/55	6.3	5.4	5.9	0.58	0.54	300	----	
Irrigated before 7/10/54								
Site 80, Jerome Co., Idaho — Portneuf SiL/SiL (CL-ML)								
7/10/54	12.8	19.1	21.4	1.1	1.79	300	----	
8/16/54	17.9	22.9	23.1	1 59	2.14	300	----	
9/14/54	20.7	22 9	22.9	1.84	2.14	253	----	
10/17/54	18.6	21.1	21.9	1.65	1.97	286	----	
3/22/55	25.3	25.6	27 7	2.25	2.40	300	----	
4/20/55	21 4	18.8	22.9	1.90	1.76	186	NT	
5/9/55	12.6	17.5	22.7	1.12	1.64	300	----	
6/4/55	12.2	18.2	23.4	1.08	1.70	300	----	
Irrigated before 7/10/54								
Site 81, Jerome Co., Idaho — Minidoka SiL/SiL (CL)								
7/10/54	18.3	20.4	24.2	1.31	1.60	275	----	
8/16/54	11.4	15.0	15.9	0.81	1.18	300	----	
9/15/54	9.5	15.9	20.5	0.68	1.25	300	----	
10/17/54	15 2	12.2	17.6	1.09	0.96	300	----	
3/21/55	20.9	17.2	14.1	1.49	1.35	300	0.78	
4/20/55	24.0	19.3	19.6	1.71	1.52	184	NT	
5/9/55	14.0	15.5	19.1	1.00	1.22	300	----	
6/4/55	9.3	14.7	24.5	0.66	1.16	212	NT	
Plowed 3/21/55 and plot moved to edge of wheat field before 7/10/54 and 6/4/55								Irrigated
Site 82, Jerome Co., Idaho — Portneuf SiL/SiL (CL)								
7/10/54	11.8	18.1	20.7	0.96	1.57	300	----	
8/16/54	11.1	10.3	11.9	0.91	0.90	300	----	
9/15/54	10.0	10.0	10.1	0.82	0.87	300	----	
10/17/54	11.0	8.1	13.1	0.90	0.70	300	----	
3/21/55	27 2	23.8	24.2	2.22	2.07	300	----	
4/20/55	23.0	21.2	20.9	1.88	1.84	300	NT	
5/9/55	13.3	21 2	19.3	1.09	1.84	300	----	
6/4/55	12.0	13.2	18 3	0.98	1.15	300	----	
Site 83, Minidoka Co., Idaho — Paul SiL/SiL (CL)								
7/10/54	11.2	14.0	18.5	1.00	1.31	300	----	
8/16/54	12.0	16.0	19.1	1.07	1.50	300	----	
9/15/54	12.7	18.1	20.0	1.13	1.69	300	----	
10/17/54	19.4	19.0	20.6	1.73	1.78	176	----	
3/21/55	20.9	20.0	26.9	1.87	1.37	233	NT	
4/20/55	10.0	18.1	22.7	0.89	1.69	261	----	
5/9/55	11.5	17.0	20.1	1.03	1.59	300	----	
6/4/55	12.4	15.9	20.3	1.11	1.49	300	----	
Irrigated before 7/10/54 and 6/4/55								
Site 84, Minidoka Co., Idaho — Rupert SL/SL (SM)								
7/10/54	7 1	7.9	6.8	0 68	0.80	300	----	
8/16/54	10.8	11.1	10.2	1.03	1.12	300	----	
9/15/54	6.4	5.9	6.2	0 61	0.60	300	----	
10/17/54	11 c	10.7	10.4	1.07	1.08	300	----	
3/21/55	15.3	12.7	13.8	1.46	1.29	300	----	
4/20/55	14 4	13.9	14.1	1 37	1.41	300	NT	
5/9/55	12.3	13.0	13.7	1.17	1.32	300	NT	
6/4/55	13.9	11 9	13.6	1.33	1.21	300	----	
Irrigated before 8/16/54 and 10/17/54								
Site 85, Minidoka Co., Idaho — Paul S/S (LM)								
7/10/54	1.7	2.5	2.4	0.16	0.24	300	----	
8/16/54	1.3	2.9	1.7	0.12	0.29	300	----	
9/15/54	0.4	0.9	1.5	0.04	0.08	300	----	
10/17/54	4.8	2.7	1.8	0.45	0.25	300	----	
3/21/55	8.6	6.7	8.0	0.80	0.63	247	1.24*	
4/20/55	6.5	5.0	6.5	0.61	0.47	265	1.42*	
5/9/55	2.7	4.6	4.7	0.25	0.43	300	----	
6/4/55	3.3	4.2	3.1	0.31	0.40	300	----	

(Continued)

Note: NT = no test.

* Vibrated remolding test.

† Measurement of 0- to 6-in. layer.

Table B3d (Continued)

Intermountain Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis, 0- to 6-in. Depth	Soil Moisture Content, Percent Weight Basis, 6- to 12-in. Depth	Soil Moisture Content, Percent Weight Basis, 12- to 18-in. Depth	Soil Moisture Content, in./6 in., 0- to 6-in. Depth	Soil Moisture Content, in./6 in., 6- to 12-in. Depth	Cone Index, 6- to 12-in. Depth	Remolding Index, 6- to 12-in. Depth	Depth to Water Table in.
Site 86, Cassia Co., Idaho — Goose Creek SiL/SiL (CL)								
7/10/54	13.3	12.0	14.3	0.87	0.88	300	----	
8/16/54	7.6	13.1	17.0	0.50	0.95	300	----	
9/15/54	8.0	13.0	15.8	0.52	0.95	300	----	
10/17/54	14.7	11.1	14.3	0.96	0.81	300	----	
3/21/55	27.0	19.8	18.5	1.77	1.45	271	NT†	
4/20/55	21.7	19.8	18.5	1.42	1.45	300	----	
5/9/55	21.4	21.0	20.8	1.40	1.54	300	----	
6/4/55	13.1	13.8	13.9	0.86	1.01	300	----	
Site 87, Cassia Co., Idaho — View SL/SL (SM)								
7/10/54	13.1	15.4	15.3	1.07	1.27	300	----	
8/16/54	12.3	14.1	16.2	1.00	1.16	300	----	
9/15/54	9.7	9.6	12.5	0.79	0.79	300	----	
10/17/54	15.7	14.8	14.8	1.28	1.22	251	NT	
3/21/55	19.0	14.4	16.6	1.55	1.18	300	----	
4/20/55	11.9	11.9	13.9	0.97	0.98	300	----	
5/9/55	10.3	12.2	14.1	0.84	1.00	300	----	
6/4/55	14.9	14.5	15.2	1.22	1.19	300	----	
Irrigated before 7/10/54, 8/16/54, 10/17/54, and 6/4/55								
Site 88, Valley Co., Idaho — Moscow SL/SL (SM)								
7/13/54	9.5	10.1	10.4	0.76	0.92	151	----	
8/13/54	5.0	5.1	6.9	0.40	0.47	300	----	
9/10/54	5.3	5.3	5.1	0.43	0.48	300	----	
10/15/54	4.5	5.1	3.9	0.36	0.47	300	----	
5/10/55	21.8	20.6	16.6	1.75	1.38	120	NT	
6/6/55	24.0	20.1	14.2	1.93	1.63	125	NT	
Site 89, Valley Co., Idaho — Unclassified L/L (CL)								
7/13/54	15.3	16.7	19.3	1.18	1.24	300	----	
8/13/54	11.7	13.9	15.1	0.90	1.03	300	----	
9/10/54	10.8	12.9	16.5	0.83	0.96	300	----	
10/14/54	8.1	11.5	13.8	0.62	0.86	300	NT	
5/10/55	33.5	35.8	35.7	2.57	2.66	84	0.27	
6/6/55	24.5	26.1	25.2	1.88	1.94	127	NT	
Irrigated before 7/13/54								
Site 90, Valley Co., Idaho — Unclassified SiL/SiL (ML)								
7/13/54	28.6	30.1	24.5	1.66	2.08	187	----	
8/13/54	16.7	18.6	19.1	0.97	1.28	262	----	
9/13/54	20.8	19.8	18.7	1.21	1.37	300	----	
10/15/54	25.0	17.3	18.6	1.46	1.19	234	----	
6/6/55	50.6	36.0	36.7	2.94	2.48	88	0.66	
Site 91, Adams Co., Idaho — Unclassified SiL/SiL (ML)								
7/13/54	22.1	21.2	23.0	1.43	1.65	300	----	
8/13/54	14.6	14.0	14.8	0.95	1.09	300	----	
9/13/54	13.8	12.3	14.2	0.89	0.96	300	----	
10/15/54	16.7	14.1	13.2	1.08	1.10	300	----	
6/6/55	38.2	31.7	32.3	2.48	2.47	102	0.70	
Site 92, Cassia Co., Idaho — Unclassified SiL/SiL (CL)								
7/14/54	9.7	19.7	18.3	0.59	1.28	300	----	
8/16/54	8.4	16.1	21.2	0.51	1.04	300	----	
9/15/54	4.8	17.3	20.8	0.29	1.12	300	----	
10/17/54	8.9	16.7	17.4	0.54	1.08	300	----	
3/21/55	22.7	19.2	17.1	1.39	1.24	300	----	
4/20/55	21.9	20.2	16.1	1.34	1.31	300	----	
5/9/55	20.6	21.0	17.4	1.25	1.36	300	----	
6/8/55	21.0	17.3	16.8	1.29	1.12	300	----	
Site 93, Cassia Co., Idaho — Unclassified SiL/SiCL (MH)								
7/14/54	16.5	21.0	18.8	0.91	1.26	300	----	
8/16/54	16.7	23.8	22.8	0.92	1.43	300	----	
9/15/54	10.6	21.1	23.7	0.58	1.27	300	----	
10/17/54	12.8	20.9	18.8	0.71	1.25	300	----	
3/21/55	29.7	23.3	20.2	1.64	1.40	300	----	
4/20/55	24.8	23.3	20.1	1.37	1.40	300	NT	
5/9/55	25.3	23.2	20.0	1.40	1.45	300	----	
6/8/55	23.1	24.4	20.5	1.28	1.46	300	----	
Site 94, Sanpete Co., Utah — Unclassified SiL/SiCL (CH)								
7/22/54	25.0	27.0	18.4	1.83	2.12	245	----	
9/19/54	18.1	18.8	23.4	1.32	1.48	283	----	
9/25/54	21.9	22.1	21.5	1.75	1.74	272	----	
10/30/54	28.1	21.1	22.2	2.06	1.66	226	----	
6/16/55	38.5	36.1	37.0	2.82	2.84	116	NT	
Site 95, Sanpete Co., Utah — Unclassified L/CL (CL)								
6/22/54	40.5	29.2	28.7	2.45	2.14	256	----	
7/22/54	33.0	28.9	27.1	2.60	3.12	271	----	
8/20/54	25.0	22.1	22.3	1.58	1.62	300	----	
9/25/54	24.6	22.9	18.9	1.49	1.62	300	----	
10/30/54	36.0	30.4	19.4	1.82	1.77	300	----	
5/23/55	47.2	39.3	33.4	2.66	2.68	149	0.76	
6/16/55	38.7	40.6	34.6	2.35	2.97	117	----	
Site 96, Sanpete Co., Utah — Unclassified CL/CL (CL)								
7/22/54	19.7	21.0	20.6	1.44	1.78	300	----	
8/19/54	20.1	18.1	34.3	1.39	1.53	300	----	
9/25/54	15.1	16.3	15.8	1.16	1.38	300	----	
10/30/54	19.4	16.7	16.1	1.49	1.41	300	----	
5/23/55	27.0	26.3	25.4	2.07	2.22	236	NT	
6/16/55	31.1	30.1	28.3	2.39	2.55	195	NT	
Site 97, Sanpete Co., Utah — Unclassified SiL/L (CL)								
7/22/54	7.2	11.1	11.1	0.60	0.99	300	----	
8/19/54	5.8	8.3	9.2	0.48	0.74	300	----	
9/25/54	10.0	8.7	9.3	0.83	0.75	300	----	
10/30/54	12.2	8.0	9.8	1.02	0.73	300	----	
4/4/55	19.0	18.2	19.0	1.66	1.62	248	NT	
5/2/55	13.2	16.1	13.9	1.10	1.43	300	----	
5/23/55	10.5	12.3	15.4	0.88	1.09	300	----	
6/16/55	9.3	9.9	11.6	0.78	0.85	300	----	
Site 98, Sanpete Co., Utah — Unclassified CL/CL (CL)								
7/22/54	38.8	34.5	34.3	2.82	2.86	172	----	
8/19/54	30.1	31.0	30.9	2.19	2.57	300	----	
9/24/54	30.6	29.6	30.8	2.22	2.45	300	----	
10/29/54	38.9	30.8	30.7	2.82	2.55	135	----	
4/4/55	44.9	39.9	45.1	3.26	3.30	61	0.45	
5/2/55	43.5	35.1	32.5	3.16	2.91	127	----	17
5/23/55	40.6	34.7	32.4	2.95	2.87	118	----	24
6/16/55	44.1	35.4	32.6	3.20	2.93	136	0.74	15
Site 99, Sanpete Co., Utah — Billings SiCL/SiCL (CL)								
7/22/54	13.5	16.0	20.3	1.04	1.47	300	----	
8/19/54	11.6	12.4	13.2	0.90	1.14	300	----	
9/24/54	12.3	13.1	13.5	0.95	1.20	300	----	
10/30/54	16.2	13.9	12.7	1.25	1.18	300	----	
4/4/55	23.0	19.5	20.2	1.78	1.79	158	1.03†	
5/2/55	21.2	18.9	20.0	1.64	1.74	130	----	
5/23/55	16.0	17.1	18.1	1.24	1.57	300	----	
6/16/55	19.5	16.8	25.8	1.40	1.54	300	----	
Irrigated before 7/22/54, 10/30/54, 4/4/55, and 6/16/55								

(Continued)

Note: NT = no test.

† Measurement of 0- 6-inch layer.

Table B3d (Continued)
Intermountain Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis, in./6 in.: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Cone Index: 0- to 6-in. Depth	6- to 12-in. Depth	Remolding Index: 6- to 12-in. Depth	Depth to Water Table in.
Site 100, Sevier Co., Utah — Redfield SiCL/SiCl (CL)							
7/22/54	25.9	37.5	39.5	1.96	3.08	300	----	
8/20/54	24.1	35.8	37.6	1.75	2.[illegible]	300	----	
9/24/54	24.3	37.9	38.[illegible]	1.84	3.12	---	----	
10/29/54	24.3	33.6	36.9	1.84	2.76	148	----	
3/7/55	Frozen							30
4/4/55	31.2	32.9	39.2	2.36	2.70	92	0.59	20
5/2/55	22.5	34.0	37.1	1.73	2.79	127	----	29
5/23/55	21.4	35.0	36.5	1.69	2.88	135	NT	26
Site 101, Sevier Co., Utah — Redfield CL/CL (CH)								
7/22/54	29.2	21.3	23.2	2.03	1.81	300	----	
8/20/54	20.2	17.8	18.9	1.41	1.52	300	----	
9/24/54	20.8	18.8	19.2	1.45	1.60	300	----	
10/29/54	18.3	18.2	18.1	1.32	1.55	300	----	
4/5/55	41.0	32.8	34.0	2.65	2.79	111	0.86	36
5/2/55	25.4	28.9	31.1	1.77	2.46	170	----	36
5/23/55	21.8	29.4	32.5	2.21	2.50	158	0.98	32
Irrigated before 5/23/55								
Site 102, Sevier Co., Utah — Palasade SL/CL (CL)								
7/23/54	15.7	16.5	13.6	1.33	1.41	300	----	
8/20/54	15.1	19.7	15.2	1.28	1.68	300	----	
9/24/54	16.4	15.2	19.3	1.39	1.41	300	----	
10/29/54	14.2	16.2	18.1	1.20	1.38	300	----	
5/17/55	27.1	17.5	----	2.29	1.49	214	----	
4/5/55	21.7	23.6	23.4	1.84	2.01	169	NT	
5/2/55	17.2	19.4	23.7	1.40	1.65	218	----	
5/23/55	12.6	20.1	13.7	1.07	1.71	300	----	
Site 103, Piute Co., Utah — Unclassified L/L (CH)								
7/23/54	32.1	42.9	53.1	2.00	2.99	128	----	
8/20/54	26.0	39.0	44.0	1.62	2.71	300	----	
9/24/54	28.3	42.7	53.9	1.77	2.97	300	----	
10/29/54	41.7	44.7	52.3	2.60	3.11	103	0.86	
4/5/55	53.0	51.3	57.6	3.31	3.57	66	0.68	11
5/2/55	49.2	52.6	57.0	3.07	3.66	97	----	19
5/24/55	46.4	50.8	50.0	2.90	3.54	122	----	18
Site 104, Piute Co., Utah — Wa. Ida SL/SL (CL-ML)								
7/23/54	14.7	12.3	8.3	1.41	1.21	300	----	
8/20/54	8.8	9.1	6.5	0.84	0.90	300	----	
9/24/54	12.7	15.6	14.5	1.22	1.54	300	----	
10/29/54	7.9	10.8	11.5	0.76	1.06	300	----	
4/5/55	12.0	13.0	12.1	1.15	1.28	300	NT	
5/2/55	14.0	17.5	18.3	1.34	1.72	300	---	
5/24/55	15.7	17.0	17.7	1.41	1.67	300	NT	
Irrigated before 5/2/55 and 5/24/55								
Site 105, Garfield Co., Utah — Redfield CL/L (CL)								
7/23/54	38.3	27.7	20.6	2.83	2.54	155	----	
8/20/54	20.3	15.6	15.4	1.50	1.43	300	----	
9/24/54	19.8	14.1	13.4	1.46	1.29	300	----	
10/29/54	15.7	11.9	8.6	1.16	1.09	300	----	
4/5/55	27.3	20.9	17.3	2.01	1.92	191	NT	
5/2/55	17.1	16.7	14.9	1.26	1.53	300	----	
5/24/55	20.5	19.1	17.2	1.51	1.75	300	----	
Irrigated before 5/24/55								
Site 106, Washington Co., Utah — Redfield L/L (CL)								
7/23/54	16.7	17.8	18.4	1.43	1.77	249	----	
8/20/54	9.8	11.0	10.3	0.76	1.10	300	----	
9/24/54	23.3	19.0	20.6	2.00	1.89	126	NT	
10/29/54	13.2	14.6	17.7	1.13	1.45	264	----	
2/16/55	21.8	17.8	20.2	1.87	1.87	136	1.13	
3/8/55	18.4	18.7	19.5	1.58	1.86	191	----	
4/5/55	23.7	20.3	21.9	2.03	2.02	117	0.76	Flooded
5/3/55	20.6	22.1	20.7	1.77	2.20	145	----	
Irrigated before 7/23/54 and 9/24/54								
Site 107, Washington Co., Utah — Redfield L/L (CL)								
7/23/54	15.1	17.2	19.8	1.80	1.62	300	----	
8/20/54	10.2	11.9	16.3	0.98	1.12	300	----	
9/24/54	11.5	14.8	16.1	1.07	1.39	300	----	
10/29/54	11.3	6.7	12.8	1.05	0.63	300	----	
2/16/55	17.5	16.5	16.2	1.63	1.55	290	NT	
3/8/55	16.0	15.5	13.5	1.49	1.46	297	----	
4/5/55	12.3	14.3	18.8	1.14	1.35	300	NT	
5/3/55	9.2	13.4	18.6	0.86	1.26	300	----	
Plowed very deep before 3/8/55								
Site 108, Washington Co., Utah — Laverkin SiCL/CL (CL)								
7/25/54	16.3	14.2	12.5	1.28	1.24	300	----	
8/22/54	11.5	12.4	8.2	0.90	1.08	300	----	
9/23/54	22.4	21.4	18.5	1.76	1.86	236	----	
10/28/54	16.2	16.3	14.4	1.27	1.42	300	----	
2/16/55	31.5	27.3	21.9	2.48	2.38	179	0.83	
3/8/55	27.0	24.5	20.7	2.19	2.23	184	----	
4/5/55	31.4	35.0	46.8	2.47	3.04	142	----	10
5/3/55	Site Saturated					107	----	0
Irrigated before 9/23/54								
Site 109, Washington Co., Utah — Redfield CL/L (CL)								
7/25/54	24.5	23.4	21.7	2.26	2.39	300	----	
8/22/54	21.2	21.8	22.6	1.96	2.22	300	----	
9/23/54	25.9	23.7	23.4	2.39	2.42	161	----	
10/28/54	33.3	24.6	23.6	3.08	2.51	111	0.38	15
2/16/55	34.3	26.1	26.6	3.17	2.66	161	0.52†	11
3/8/55	32.5	24.6	23.8	3.00	2.52	137	0.42	12
4/5/55	30.6	24.7	18.5	2.83	2.52	159	NT	
5/3/55	29.3	21.9	16.5	2.71	2.23	177	0.72	
Bulk density values questionable. Irrigated before 9/23/54								
Site 110, Washington Co., Utah — Bracken LS/LS (SM)								
7/25/54	2.0	2.6	6.5	0.19	0.24	300	----	
8/22/54	1.2	1.4	4.1	0.11	0.13	300	----	
9/23/54	1.9	2.2	2.8	0.18	0.21	300	----	
10/28/54	0.6	2.0	4.1	0.06	0.19	300	----	
2/16/55	5.2	7.8	9.1	0.49	0.73	198	NT	
3/8/55	5.1	6.4	7.7	0.48	0.60	287	----	
4/5/55	2.7	5.1	13.9	0.26	0.48	300	----	
5/3/55	1.8	3.4	4.4	0.17	0.17	300	----	
Site 111, Washington Co., Utah — Gila SiL/SL (SM)								
7/25/54	12.8	20.9	20.4	1.78	1.84	300	----	
8/22/54	14.0	19.7	16.4	1.29	1.74	300	----	
9/23/54	11.5	19.1	11.5	1.06	1.68	300	----	
10/28/54	11.9	20.4	14.4	1.10	1.80	300	----	
2/16/55	15.5	18.1	23.1	1.43	1.60	293	NT	
3/8/55	12.2	19.5	20.0	1.13	1.72	292	----	
4/5/55	14.5	23.4	19.9	1.34	2.06	300	----	
5/3/55	14.8	18.2	17.1	1.37	1.61	300	----	
Site 112, Washington Co., Utah — Gila L/SL (SM)								
7/25/54	29.7	17.6	12.8	2.42	1.63	300	----	
8/22/54	26.6	13.2	9.0	2.17	1.22	300	----	
9/23/54	31.2	14.1	11.3	2.55	1.30	300	----	
10/28/54	48.2	17.4	16.4	---	---	300	----	
2/16/55	35.5	23.4	20.9	2.90	2.16	293	NT	40
3/18/55	35.1	23.7	19.9	2.95	2.19	292	NT	32
4/5/55	27.6	24.0	18.0	2.25	2.22	300	NT*	31
5/3/55	32.0	25.9	23.6	2.61	2.39	278	----	22
Site 113, Washington Co., Utah — Saint George LS/S (SM)								
7/25/54	1.7	1.3	2.4	0.16	0.13	300	----	
8/22/54	0.55	0.61	1.23	0.05	0.06	300	----	
9/23/54	0.6	1.0	1.0	0.06	0.10	300	----	
10/28/54	0.3	1.3	0.9	0.03	0.13	300	----	
2/16/55	4.0	6.0	5.0	0.38	0.58	215	NT	
3/8/55	5.0	5.9	4.5	0.48	0.57	266	----	
4/6/55	3.6	4.3	4.5	0.35	0.42	278	1.71*	
5/3/55	2.6	5.6	2.3	0.25	0.54	300	----	

(Continued)

Note: NT = no test.
* Vibrated remolding test.
† Measurement of 0- 6-inch layer.

Table 33d (Continued)

Intermountain Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, in./6 in.: 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 114, Washington Co., Utah — Tobler S/L (SM)								
7/25/54	0.8	3.3	1.7	0.06	0.33	300	----	
8/22/54	0.5	1.2	0.9	0.05	0.12	300	----	
9/23/54	0.0	1.8	1.4	0.00	0.18	300	----	
10/28/54	0.0	0.8	1.5	0.00	0.06	300	----	
3/8/55	4.0	4.6	4.7	0.38	0.47	154	NT	
4/6/55	1.8	4.2	4.0	0.17	0.42	189	----	
5/3/55	1.4	3.6	2.9	0.13	0.36	300	----	
5/24/55	0.5	1.4	1.3	0.05	0.14	300	----	
Site 115, Washington Co., Utah — Musinia L/SL (SM)								
7/25/54	4.7	5.4	8.0	0.39	0.49	300	----	
8/22/54	4.9	7.1	6.9	0.49	0.64	300	----	
9/23/54	4.7	7.0	7.7	0.39	0.63	300	----	
10/28/54	5.5	6.7	6.9	0.45	0.60	300	----	
3/8/55	24.0	15.3	12.1	1.97	1.38	300	NT	
4/6/55	14.4	9.2	8.8	1.18	0.83	300	----	
5/3/55	6.5	13.9	11.6	0.53	1.25	300	----	
5/24/55	7.0	10.0	8.7	0.58	0.93	300	----	
Site 116, Washington Co., Utah — Tabiona L/L (CL)								
7/25/54	6.5	6.9	8.8	0.57	0.63	300	----	
8/22/54	4.9	5.5	6.1	0.43	0.50	300	----	
9/23/54	4.3	4.9	5.1	0.38	0.45	300	----	
10/28/54	4.7	5.9	6.8	0.41	0.54	300	----	
3/8/55	20.1	16.3	7.3	1.76	1.53	266	0.53 †	
4/6/55	12.5	11.2	7.6	1.10	1.02	300	NT	
5/3/55	9.0	12.1	10.9	0.79	1.10	300	----	
5/24/55	6.4	11.8	9.3	0.74	1.08	300	----	
Site 117, Washington Co., Utah — Tabiona SL/SL (SM)								
7/26/54	5.9	3.8	6.6	0.54	0.35	300	----	
8/22/54	3.7	3.6	5.2	0.34	0.33	300	----	
9/23/54	1.6	2.8	3.3	0.15	0.26	300	----	
10/28/54	4.4	3.1	8.4	0.40	0.29	300	----	
3/8/55	20.0	14.6	17.8	1.82	1.36	147	NT	
4/6/55	9.3	12.8	14.6	0.85	1.19	285	NT*	
5/3/55	7.4	11.1	13.6	0.67	1.03	300	----	
5/24/55	3.6	6.6	9.7	0.33	0.61	300	----	
Site 118, Iron Co., Utah — Unclassified SIL/SIL (ML)								
7/26/54	18.7	27.2	28.0	1.17	1.76	300	----	
8/22/54	20.0	26.8	27.8	1.25	1.74	300	----	
9/23/54	15.8	25.5	26.6	0.99	1.66	300	----	
10/28/54	19.2	26.9	25.4	1.20	1.74	300	----	
3/8/55	23.2	28.7	29.3	1.45	1.86	300	----	
4/6/55	21.4	27.8	28.5	1.34	1.80	300	----	
5/3/55	16.7	23.8	27.8	1.04	1.54	300	----	
5/24/55	10.1	27.0	30.6	0.63	1.75	300	----	
Site 119, Iron Co., Utah — Unclassified SIL/SIL (CL)								
7/26/54	8.9	8.8	13.0	0.74	0.69	300	----	
8/22/54	8.8	10.9	9.6	0.73	0.77	300	----	
9/23/54	8.1	10.4	10.9	0.67	0.74	300	----	
10/28/54	8.1	10.2	9.4	0.67	0.72	300	----	
3/8/55	16.4	15.0	10.7	1.36	1.06	300	----	
4/6/55	12.8	14.7	11.6	1.06	1.04	300	----	
5/3/55	10.0	14.4	11.4	0.83	1.02	300	----	
5/24/55	6.7	13.9	11.6	0.55	0.98	300	----	
Site 120, Iron Co., Utah — Unclassified SIC/C (CL)								
7/26/54	13.1	7.7	6.0	1.11	0.78	300	----	
8/22/54	7.6	5.5	10.0	0.64	0.56	300	----	
9/22/54	6.9	7.3	6.5	0.68	0.74	300	----	
10/28/54	9.1	6.7	7.0	0.77	0.68	360	----	
3/9/55	17.0	10.5	7.9	1.44	1.06	300	NT	
4/6/55	12.1	11.8	7.9	1.02	1.20	300	----	
5/3/55	8.8	9.0	7.6	0.74	0.91	300	----	
5/24/55	5.4	8.2	7.7	0.46	0.83	300	----	
Site 121, Iron Co., Utah — Mayfield SL/SL (SM)								
7/26/54	4.8	3.4	3.0	0.43	0.29	300	----	
8/22/54	2.9	1.5	3.8	0.26	0.13	300	----	
9/22/54	0.3	1.5	1.3	0.03	0.13	300	----	
10/28/54	2.7	1.9	2.5	0.24	0.16	300	----	
3/9/55	11.0	11.7	8.2	0.96	1.00	119	NT	
4/6/55	9.7	12.8	10.4	0.86	1.09	132	NT	
5/3/55	5.9	9.1	7.4	0.52	0.78	148	----	
5/24/55	4.7	8.0	7.3	0.42	0.68	300	----	
Site 122, Beaver Co., Utah — Vanassa SIL/SIL (CL-ML)								
7/26/54	9.5	7.0	12.6	0.84	0.60	300	----	
8/23/54	7.5	7.4	10.9	0.67	0.63	300	----	
9/22/54	3.6	3.4	6.9	0.32	0.29	300	----	
10/27/54	4.2	5.0	9.9	0.37	0.51	300	----	
3/9/55	21.4	19.6	20.9	1.90	1.69	214	0.48	
4/6/55	13.7	13.8	14.0	1.22	1.18	---	NT	
5/4/55	10.4	12.5	18.1	0.92	1.06	300	----	
5/24/55	6.5	12.9	15.5	0.58	1.10	300	----	
Site 123, Beaver Co., Utah — Mellor L/SIL (CL)								
7/27/54	7.0	12.1	10.9	0.64	0.98	300	----	
8/23/54	9.9	13.8	11.3	0.90	1.22	300	----	
9/22/54	4.7	10.3	14.1	0.43	0.91	300	----	
10/27/54	6.2	10.4	14.1	0.57	0.92	300	----	
3/9/55	18.7	21.6	21.4	1.71	1.91	240	NT	
4/6/55	12.6	16.3	21.1	1.15	1.44	300+	NT	
5/4/55	19.7	24.6	24.4	1.80	2.17	148	0.51	
5/24/55	15.9	22.1	26.0	1.45	1.95	212	NT	
Site 124, Beaver Co., Utah — Unclassified SICL/SICL (CL)								
7/26/54	30.0	25.7	19.9	2.21	2.13	300	----	
8/23/54	23.1	19.0	16.7	1.70	1.60	300	----	
9/22/54	16.7	15.8	14.4	1.23	1.32	300	----	
11/27/54	17.6	16.6	14.4	1.30	1.39	300	----	
3/9/55	38.9	28.9	30.4	2.84	2.26	236	0.89 †	13
4/6/55	33.6	31.5	38.3	.48	2.65	200	----	11
5/4/55	25.8	31.6	37.4	1.88	2.65	221	----	25
5/24/55	24.6	30.6	36.3	1.82	2.56	162	NT	29
Site 125, Beaver Co., Utah — Millard SL/SL (SM)								
7/27/54	5.3	4.8	3.1	0.55	0.45	300	----	
8/23/54	3.2	4.5	3.7	0.33	0.42	300	----	
9/22/54	2.0	3.8	4.1	0.21	0.36	300	----	
10/27/54	4.9	3.8	3.0	0.51	0.35	300	----	
3/9/55	9.7	9.8	9.1	1.01	0.86	300	NT	
4/6/55	6.4	6.8	7.8	0.66	0.64	300+	----	
5/4/55	4.2	6.6	6.7	0.44	0.62	300+	----	
5/24/55	3.9	5.6	5.8	0.40	0.52	300+	----	
Site 126, Millard Co., Utah — Unclassified S/S (SM)								
7/27/54	7.3	7.5	4.8	0.64	0.68	172	----	
8/23/54	2.0	1.9	3.2	0.18	0.17	300	----	
9/22/54	2.6	4.1	4.0	0.23	0.37	292	----	
10/27/54	6.5	5.2	3.8	0.57	0.47	247	----	
3/9/55	7.0	7.9	8.6	0.61	0.72	144	NT	
4/7/55	4.9	6.6	6.1	0.43	0.60	175	1.34*	
5/4/55	3.9	5.7	6.1	0.34	0.52	205	----	
5/25/55	3.9	5.0	5.0	0.52	0.46	300	----	
Site 127, Millard Co., Utah — Unclassified SL/LC (SM)								
7/27/54	10.0	8.9	4.7	0.86	0.77	262	----	
8/23/54	2.0	4.1	6.5	0.17	0.35	300	----	
9/22/54	2.3	4.0	5.3	0.19	0.35	284	----	
10/27/54	6.5	5.0	5.9	0.53	0.43	300	----	
3/9/55	8.1	9.0	7.4	0.68	0.78	262	NT	
4/7/55	7.0	7.2	7.7	0.59	0.52	289	----	
5/4/55	3.7	6.5	8.6	0.31	0.52	300	----	
5/25/55	6.4	6.1	5.9	0.54	0.53	300	----	

(Continued)

Note: NT = no test.

* Vibrated remolding test.

† Measurement of 0- 6-inch layer.

Table 33d (Continued)

Intermountain Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, in./6 in.: 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 128, Millard Co., Utah — Unclassified SiCL/SiL (ML)								
7/27/54	18.0	12.6	15.9	1.34	0.94	300	----	
8/23/54	21.0	14.6	19.6	0.89	1.09	300	----	
9/22/54	11.5	13.6	13.0	0.86	1.02	300	----	
10/27/54	14.0	13.8	17.1	0.97	1.04	300	----	
3/9/55	15.0	16.2	18.9	1.12	1.22	300+	NT	
4/7/55	14.3	15.3	15.7	1.06	1.15	300+	----	
5/4/55	10.8	13.6	17.2	0.80	1.02	300+	----	
5/25/55	10.8	14.5	18.0	0.80	1.09	300+	----	
Site 129, Millard Co., Utah — Unclassified L/L (CL-ML)								
7/27/54	6.0	4.8	3.9	0.48	0.39	300	----	
8/23/54	2.5	3.4	4.1	0.20	0.28	300	----	
9/22/54	1.8	3.6	4.2	0.14	0.29	300	----	
10/27/54	13.6	4.2	4.4	1.09	0.34	300	----	
3/10/55	14.9	12.5	8.1	1.20	1.02	225	NT	
4/7/55	11.1	11.3	12.9	0.89	0.92	225	NT	
5/4/55	8.9	11.8	10.2	0.72	0.96	253	----	
5/25/55	16.0	8.1	8.8	1.29	0.66	300+	----	
Site 130, Millard Co., Utah — Unclassified SL/SL (SC)								
7/27/54	1.9	3.1	6.1	0.18	0.30	286	----	
8/23/54	0.5	2.2	1.6	0.52	0.21	283	----	
9/22/54	0.9	1.8	1.7	0.09	0.17	300	----	
10/27/54	9.3	3.1	2.6	0.90	0.30	259	----	
3/10/55	10.1	9.3	6.5	0.98	0.91	167	NT	
4/7/55	6.6	6.7	6.7	0.64	0.64	274	----	
5/4/55	3.3	5.1	5.3	0.32	0.49	300+	----	
5/25/55	8.6	3.9	4.9	0.84	0.37	300+	----	
Site 131, White Pine Co., Nevada — Unclassified SL/SL (SM)								
7/27/54	1.2	2.7	2.6	0.11	0.25	300	----	
8/23/54	0.3	1.4	1.4	0.27	0.13	300	----	
9/22/54	0.6	1.2	1.2	0.59	0.11	285	----	
10/27/54	10.5	3.0	1.4	0.96	0.28	262	----	
3/10/55	10.5	10.2	6.6	0.96	0.95	213	NT †	
4/7/55	6.4	7.3	6.0	0.58	0.68	273	----	
5/4/55	4.5	4.8	4.4	0.41	0.45	268	----	
5/25/55	11.4	3.7	3.6	1.04	0.35	284	----	
Site 132, White Pine Co., Nevada — Unclassified SiL/SiL (CL)								
6/25/54	10.9	12.8	14.0	0.73	0.98	300	----	
7/27/54	9.7	12.9	13.0	0.65	0.99	300	NT	
8/23/54	6.8	10.8	12.7	0.46	0.83	300	----	
9/21/54	11.8	10.2	10.5	0.79	0.78	300	----	
10/27/54	19.1	14.8	13.6	1.28	1.14	187	----	
4/7/55	14.4	17.6	17.4	0.97	1.35	123	1.12	
5/4/55	22.8	16.3	17.1	1.53	1.25	151	----	
5/25/55	12.7	16.2	17.6	0.85	1.24	136	NT	
Three inches of snow on site 10/27/54								
Site 133, White Pine Co., Nevada — Unclassified SiL/SiL (ML)								
7/8/54	56.0	42.9	45.2	3.83	3.19	206	----	30
8/23/54	52.3	44.4	36.9	3.58	3.30	232	----	
9/21/54	50.8	43.9	44.0	3.47	3.27	300	----	
10/27/54	63.2	44.5	41.1	4.32	3.31	187	0.54	47
4/7/55	68.9	48.3	61.9	4.71	3.59	163	0.38	9
5/4/55	72.3	51.3	53.0	4.95	3.82	141	----	11
5/25/55	66.3	47.5	51.5	4.47	3.53	166	----	18
Bulk density values questionable								
Site 134, White Pine Co., Nevada — Unclassified L/L (CL)								
7/28/54	7.5	6.3	9.5	0.57	0.48	300	----	
8/24/54	5.3	6.6	8.2	0.48	0.51	300	----	
9/21/54	8.6	10.5	9.5	0.66	0.81	300	----	
10/27/54	16.5	9.3	9.0	1.26	0.71	300	----	
4/7/55	20.1	24.8	21.2	1.53	1.90	125	NT	
5/4/55	22.6	24.3	21.4	1.72	1.87	144	0.58	
5/25/55	21.3	19.7	18.7	1.62	1.51	153	----	
Site 135, Elko Co., Nevada — Unclassified L/CL (CL)								
7/28/54	12.4	8.1	12.6	1.00	0.64	300	----	
8/24/54	3.0	7.4	5.6	0.24	0.59	300	----	
9/21/54	3.3	6.6	7.1	0.27	0.52	300	----	
10/26/54	7.3	6.3	7.5	0.59	0.50	300	----	
4/7/55	14.3	15.3	14.2	1.16	1.21	222	NT	
5/5/55	11.9	15.2	13.7	0.96	1.20	251	NT	
5/25/55	13.0	12.8	13.1	1.05	1.01	300	----	
Site 136, Elko Co., Nevada — Unclassified L/L (CL)								
7/28/54	4.8	9.4	9.5	0.40	0.81	300	----	
8/24/54	4.7	9.3	9.1	0.39	0.80	300	----	
9/21/54	3.4	7.1	7.3	0.28	0.61	300	----	
10/26/54	7.0	6.8	8.6	0.58	0.59	300	----	
3/10/55	24.7	22.0	10.2	2.03	1.90	141	0.28†	
4/8/55	14.5	16.5	18.4	1.19	1.43	248	----	
5/5/55	9.9	13.4	16.2	0.81	1.16	300	----	
5/25/55	12.2	13.3	14.5	1.00	1.15	300	----	
Site 137, Elko Co., Nevada — Unclassified L/SiL (ML)								
7/28/54	3.9	10.3	11.5	0.31	0.91	300	----	
8/24/54	4.7	11.0	16.4	0.37	0.98	300	----	
9/21/54	4.1	13.1	14.4	0.32	1.16	300	----	
10/26/54	8.9	13.1	16.7	0.70	1.16	300	----	
3/10/55	30.4	21.9	18.8	2.41	1.94	231	0.20†	
4/8/55	12.9	17.8	11.4	1.02	1.05	300	NT	
5/5/55	8.9	19.8	21.2	0.70	1.76	300	----	
5/25/55	13.6	15.0	22.3	1.08	1.83	300	----	
Site 138, Elko Co., Nevada — Unclassified SL/SL (SC)								
7/28/54	2.9	6.4	5.3	0.25	0.58	300	----	
8/24/54	2.0	4.5	5.0	0.18	0.41	300	----	
9/21/54	3.4	3.3	4.6	0.30	0.30	300	----	
10/26/54	4.2	5.0	5.5	0.37	0.45	300	----	
3/11/55		3 - 7" Snow Cover and Frozen						
4/8/55	11.6	11.2	9.1	1.02	1.01	218	NT	
5/5/55	9.6	11.4	10.7	0.84	1.03	135	----	
5/26/55	10.7	10.1	11.0	0.94	0.92	207	----	
Site 139, Elko Co., Nevada — Unclassified SiL/SiL (ML)								
7/28/54	9.8	15.3	14.7	0.64	0.99	300	----	
8/24/54	9.3	12.0	13.5	0.60	0.78	300	----	
9/21/54	9.2	12.6	11.3	0.60	0.82	300	----	
10/26/54	14.9	14.0	14.3	0.96	0.91	300	----	
3/11/55		6" Snow Cover						
4/8/55	32.4	29.4	19.8	2.10	1.91	182	NT	
5/5/55	22.0	25.0	16.0	1.43	1.62	300+	----	
5/26/55	23.4	24.6	26.9	1.52	1.59	300+	----	
Site 140, Elko Co., Nevada — Unclassified SiL/L (ML)								
7/28/54	4.1	6.2	2.8	0.36	0.64	300	----	
8/24/54	2.8	5.6	5.1	0.25	0.55	300	----	
9/21/54	2.6	4.6	3.9	0.23	0.45	300	----	
10/26/54	4.1	4.9	5.1	0.36	0.48	300	----	
3/11/55	16.1	11.2	9.5	1.43	1.10	251	NT	
4/8/55	9.6	10.1	5.1	0.85	0.99	300	NT	
5/5/55	8.1	9.5	10.4	0.72	0.93	300	----	
5/26/55	8.4	8.5	8.4	0.75	0.83	300+	----	
Site 141, Tooele Co., Utah — Saltair SiL/CL (CL)								
7/29/54	27.2	25.7	27.3	2.32	2.36	269	----	
8/24/54	21.5	26.3	20.4	1.83	2.41	272	----	
9/21/54	26.6	24.4	21.4	2.27	2.24	300	----	
10/26/54	29.0	23.8	19.5	2.47	2.18	246	----	
3/11/55	28.2	25.9	27.1	2.40	2.37	248	NT	3
4/8/55	26.4	24.9	29.1	2.25	2.29	300	0.55	0
5/5/55	24.6	28.8	28.9	2.10	2.64	300+	----	0
5/26/55	34.7	20.3	26.9	2.62	1.86	300	NT	0

(Continued)

Note: NT = no test.

† Measurement of 0- 6-inch layer.

Table B3d (Concluded)

Intermountain Region (Continued)

Sample Date	Soil Moisture Content, Percent Weight Basis: 0- to 6-in. Depth	6- to 12-in. Depth	12- to 18-in. Depth	Soil Moisture Content, in./6 in.: 0- to 6-in. Depth	6- to 12-in. Depth	Cone Index 6- to 12-in. Depth	Remolding Index 6- to 12-in. Depth	Depth to Water Table in.
Site 142, Tooele Co., Utah — Saltair SiCL/C (CL)								
7/29/54	27.8	29.5	37.6	2.35	2.73	300	----	
8/25/54	28.1	26.4	37.7	2.38	2.44	300	----	
9/21/54	27.7	27.9	36.7	2.34	2.58	300	----	
10/26/54	30.6	27.6	35.4	2.59	2.55	300	----	
3/11/55	31.2	27.8	33.5	2.64	2.57	270	NT	
4/8/55	28.7	27.7	39.5	2.43	2.56	300	----	
5/5/55	29.6	27.1	37.1	2.50	2.50	232	----	
5/26/55	30.7	22.7	39.0	2.60	2.10	269	NT	
Site 143, Tooele Co., Utah — Saltair SiCL/SiCL (CL-ML)								
7/29/54	36.1	36.7	39.1	2.90	2.95	133	----	
8/25/54	[illegible]	27.5	----	2.44	2.21	116	----	
9/20/54	31.0	37.3	33.1	2.49	3.00	148	----	
10/26/54	34.4	26.7	36.6	2.77	2.15	112	----	0
3/11/55	Flooded							
4/8/55	39.2	34.6	40.1	3.15	2.78	134	----	17
5/5/55	36.2	39.5	42.7	2.91	3.18	130	----	20
5/26/55	35.1	33.3	41.8	2.82	3.08	139	0.65	
Site 144, Tooele Co., Utah — Saltair SiL/SiCL (CL)								
7/29/54	38.5	45.6	46.5	3.07	3.56	115	----	
8/25/54	25.0	30.6	37.3	2.00	2.39	130	----	
9/20/54	36.9	42.7	44.9	2.94	3 33	127	----	
10/26/54	29.3	22.5	20.5	2.34	1.76	106	----	
3/11/55	41.0	43 0	41.4	3.27	3.35	124	0.44	12
4/8/55	41 6	44.1	45.8	3.32	3.44	128	0.38	25
5/5/55	38.6	44.1	49.2	3.08	3.44	125	----	32
5/26/55	39.0	44.3	51.1	3.11	3.46	131	----	
Site 145, Tooele Co., Utah — Unclassified SiL/L (CL)								
7/29/54	6.3	11.6	12.9	0.57	1.04	300	----	
8/25/54	5.7	8.0	11.3	0.52	0.72	300	----	
9/20/54	6.4	8.6	11.6	0.58	0.77	300	----	
10/26/54	9.0	7.9	10.9	0.82	0.71	300	----	
3/11/55	13.4	13.4	12.9	1.21	1.21	300	NT	
4/8/55	11.5	12.5	12.6	1.04	1.12	300+	NT	
5/5/55	6.6	11.1	11.8	0.60	1.00	300+	----	
5/26/55	7.4	11.3	13.7	0.67	1.02	300+	----	

Bulk density and tension values questionable

Note: NT = no test.

APPENDIX C: SOME OBSERVATIONS OF RUNOFF WITH CLASS I ACCRETIONS

1. As stated previously, the strength of the surface to 12-in. soil depth, the layer that determines for most soils whether or not a vehicle can move across them, is primarily affected by its moisture content, and knowledge of the moisture content to this depth is needed to determine trafficability of the soil. The amount of rain water that runs off the surface or percolates below the 12-in. depth is considered to have no effect on trafficability. Hence, all rainfall is not effective and rainfall records alone cannot be used to determine how much water is retained in the surface to 12-in. layer from, say, a 24-hour storm. Storms of the same size may have totally different effects on the same soil area on different days because of a difference in the available storage space in the soil. For example, in a season of repeated rainfall, most of a one-inch storm may run off because the soil is nearly saturated; whereas in a dry season, that same soil might absorb the inch of moisture quite readily. It is obvious, then, that some means of classifying soil-moisture accretion in terms of rainfall and the capability of the soil to receive it is necessary. The accretion classification considers the amount of rainfall that occurred on a given day as well as the amount of available storage in the top 12 in. of the soil on the day preceding the storm. Accretions are called Class I when the amount of rainfall is less than the amount of available storage, and Class II when the amount of rainfall is equal to or greater than the amount of available storage.

2. The amount of rainfall below which accretion is not measurably affected is called the minimum-size storm, and the average minimum-size storm has been found to be 0.10 in.; rainfall less than this amount is ignored in the prediction method.

3. Runoff or percolation through the 12-in. depth is expected to accompany a Class II accretion because in this class rainfall exceeds available storage. Hence, with available storage the limiting factor, Class II prediction relations are derived as linear regressions of accretion against available storage. The amount of rainfall does not enter into the relations, and the amount of rain that runs off or percolates

through the 12-in. depth is not needed in these calculations.

4. With Class I accretions, rainfall is the limiting factor, and accretion relations are derived as linear regressions of accretion against rainfall amounts. It was assumed that runoff would be unimportant in most storms having Class I accretions, and several facts support this assumption. For [illegible], storms of the size causing Class I accretions are generally small and [illegible] cause runoff. The few large storms that give Class I accretions by necessity fall on dry soil. It is known that dry soil absorbs water at very high rates initially even though the soil has low infiltration rates when wet. For example, in August a loess soil near Vicksburg had infiltration rates (including depression storage) of over 4 in. per hour for the first ten minutes, and an infiltration rate of over 2 in. during the first hour of artificial wetting, although infiltration rates when the soil was wet were only 0.2 to 0.4 in. per hour.* Hence, short, high intensity storms, and large storms occurring on dry soil can be absorbed with no runoff even though the soil has low infiltration rates when wet. A third condition reducing the importance of runoff as a source of error in Class I accretions is the inclusion of the effect of consistent runoff from certain sites within their accretion regressions. In this instance the regression slope is smaller, as the amount of accretion is less for a given amount of rain. A comparison of 20 bared sites with 84 vegetated sites showed that regression slopes averaged 0.07 less for the bared sites, giving 0.10 in. less soil-moisture accretion from a one-inch storm; this may be considered as runoff from the bared soil. Some level, bared plots with no litter, paired with forested plots failed to show this reduction in accretion. Interception was much less and accretion actually greater on the bared plots, thereby masking runoff from these soils.

5. However, runoff with some Class I accretions may cause error in prediction. A study of factors affecting Class I accretion slopes showed that the amount of available storage was a secondary factor determining regression slopes (paragraph 37 of the main report), thus indicating that

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* K. G. Reinhart and R. E. Taylor, "Infiltration and available water storage capacity in the soil," Transactions, American Geophysical Union, vol 35, No. 5 (1954), pp 791-795.

available storage rather than rainfall may be limiting, and runoff occur with some Class I accretions.

6. Runoff was not measured on the early prediction development sites, so the assumption that runoff did not occur with most Class I accretions could not be verified. Later, runoff data along with soil-moisture and rainfall records were obtained for 12 sites at San Dimas, Calif., and 3 near Nacogdoches, Tex., which afforded an opportunity to check the incidence of runoff with Class I accretions. The San Dimas sites were lysimeters filled with a homogeneous soil material prepared from Vista-Fallbrook sandy loam in 1937. Seven of the lysimeters were confined, with concrete sides and bottom, and were 10 by 20 ft and 6 ft deep. The five "unconfined lysimeters" consisted of pits 17-1/2 ft on a side and 7 ft deep, filled with the prepared soil, and with no restriction against subsurface flow or drainage. These were calibrated for 9 years, and soil moisture and runoff were measured. Then in 1946, five species that grow in chaparral were planted in the unconfined and in five of the confined lysimeters including Coulter pine, chamise, Ceanothus, scrub oak, and buckwheat brush. One of the two remaining confined lysimeters was planted with grass and the other maintained bare. Data collected between 1951 and 1955 were used in this study. These lysimeters had low infiltration rates and high runoff; hence, they would provide a good test of runoff from Class I accretions. On an annual basis, two-thirds of the precipitation ran off of the bare plot, about one-third ran off of the pine plot, and lesser amounts from the other vegetated plots.

7. The three sites in east Texas were established in a pine forest with hardwood understory. Each site was located on a different soil type, Boswell loamy fine sand over a clay loam, Sawyer loam, and Huckabee fine sandy loam. The soils were undisturbed except for the insertion of a metal frame to catch runoff, and the installation of Fiberglas units to measure soil moisture. Data collected during 1953 were used in this study.

8. The amounts of rainfall, runoff, and available storage in both surface to 6-in. and surface to 12-in. layers were tabulated for each storm at the 15 sites. The storms were then grouped according to whether rainfall was less or more than the amount of available storage, considering the two layers separately. The percentage of storms with runoff over 0.10 in.

was determined for each of the groups for each site. Runoff less than 0.10 in. was considered insignificant in application to prediction.

9. The frequency of runoff when rainfall was less than available storage is summarized in table C1. Runoff from storms with an amount of

Table C1

Frequency of Runoff with Class I Accretions

Site		Per Cent of Storms Having More Than 0.10-in. Runoff with Available Storage Based on Surface to 12-in. Layer	Surface to 6-in. Layer
California Lysimeters			
c*	Bare	59	31
c	Pine (Pinus coulteri)	33	5
u**	Pine (Pinus coulteri)	49	12
c	Chamise (Adenostoma fasciculatum)	17	4
u	Chamise (Adenostoma fasciculatum)	4	0
c	Grass (Mixed species)	6	4
c	Buckwheat brush (Eriogonum fasciculatum foliolosum)	6	4
u	Buckwheat brush (Eriogonum fasciculatum foliolosum)	0	0
c	Ceanothus (Ceanothus crassifolius)	5	0
u	Ceanothus (Ceanothus crassifolius)	0	0
c	Scrub oak (Quercus dumosa)	0	0
u	Scrub oak (Quercus dumosa)	0	0
	Weighted average	17	5
	Total number of storms	364	249
East Texas			
	Boswell	0	0
	Sawyer	0	0
	Huckabee	0	0
	Weighted average	0	0
	Total number of storms	65	52

* c = confined lysimeters.
** u = unconfined lysimeters.

water less than the amount of available storage in the surface to 12-in. layer corresponds to runoff with Class I accretions. Six per cent or less of the storms occurring at eight of the California sites caused appreciable runoff, and no storms at the Texas sites caused runoff in this category. The bare, the two young pine, and one of the chamise sites had runoff frequently, even though there was sufficient storage to retain the rainfall, indicating very low infiltration rates under conditions of little or no litter. Except for these relatively bare sites, runoff seldom occurred with Class I accretions, thus supporting the original assumption for accretion classification.

10. The selection of the 12-in. depth was made solely because it is the critical depth for trafficability. A different depth may be more suitable for determining the amount of available storage that governs runoff. Using the 12-in. depth, it is possible for the soil surface to be quite wet but the 6- to 12-in. layer very dry, thus providing enough available storage to put an accretion into Class I, even though the wet surface is conducive to runoff which is expected in Class II accretions. Therefore it was decided to determine the frequency of runoff when rainfall was less than available storage in the surface to 6-in. layer; these data are also shown in table C1. The number of storms was reduced from 364 to 249 because smaller amounts of available storage were considered, and consequently smaller rainfalls. The frequency of runoff at the California sites was reduced from 17% to 5% when the calculation of available storage was changed from the 12- to 6-in. depth. A marked reduction occurred for those sites with small amounts of litter and the bare site. If the primary purpose of the accretion classification were separation of storms with runoff from those without, calculation of available storage to the 6-in. depth rather than the 12-in. depth would be better for the California lysimeter plots. However, the purpose of the accretion classification is to aid in predicting the amount of water in the 6- to 12-in. layer, wherein the soil strength affects trafficability. If the surface to 6-in. layer is used as a basis for accretion classification, then accretion must also be separately classified in the 6- to 12-in. layer. If this is done, allowance would then have to be made for water retained in the surface to 6-in. layer and for runoff (or storm intensity and infiltration rates would have

to be considered) before accretion could be classified or added to the 6- to 12-in. layer. Likewise, with the present accretion classifications, knowledge of storm intensity and infiltration are needed to determine accretion below the 12-in. depth. The present accretion classification based on the surface to 12-in. layer appears to be satisfactory for trafficability purposes at most sites.

APPENDIX D: SOIL-MOISTURE VARIATION STUDY

1. The natural variability of soil-moisture content over an area limits the accuracy of a moisture prediction. Because little was known about the magnitude of moisture variation in the surface to 6-in. and the 6- to 12-in. layers, a study of this factor was made at 8 sites in six states by the Infiltration Project. These findings have been published as a separate paper,* and this appendix presents essentially the same information; it is included to emphasize the importance to prediction of the variation in soil characteristics.

2. Moisture content will, of course, vary by soil depth, but this can be taken care of by separate determinations for each soil horizon or layer. The variation to be considered is that which occurs at any one time within one layer of an area apparently homogeneous as to soil and vegetation.

3. Soil variation, in such properties as texture, structure, organic content, and bulk density, will exist over any area mapped as one soil type. A certain heterogeneity within a mapped soil type may be expected, according to the Soil Survey Manual:**

> "The soil type is a subdivision of the soil series based on the texture of the surface soil.... It is the lowest and most nearly homogeneous unit in the natural system of classification. A soil type may include defined variations in such characteristics as slope, stoniness, degree of erosion, or depth to bedrock or layers of unconformable material."

4. The effect of vegetation on soil-moisture variation is least when the area is fully occupied with cover of uniform composition and greatest when the soil is only partially covered--as with young row-crops or scattered bunch-grasses or shrubs. Variation in vegetation causes differences in interception, stemflow, and transpiration, which affect soil-moisture content and its variation.

5. Uneven penetration of rainfall in the soil profile probably

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* H. W. Lull and K. G. Reinhart, Soil-moisture Measurement, Occasional Paper 140 (New Orleans, La., Southern Forest Experiment Station, 1955).

** U. S. Department of Agriculture, Soil Survey Manual, Handbook 18 (Government Printing Office, 1951), 503 pp.

accounts for a major part of soil-moisture variation; variation may be caused by differences in infiltration rates, runoff from parts of the area or runon from adjacent areas, and gain or loss of water at a given point by subsurface flow. Variation in distribution of rainfall over an area also results in variation in soil-moisture content at any given soil depth.

6. The Vicksburg Project studied the amount of variation in soil-moisture content of the surface to 6- and the 6- to 12-in. layers on areas of apparently homogeneous soil and cover in Mississippi, Louisiana, Arkansas, New Mexico, Colorado, and Wisconsin. Each sampling area contained 40,000 sq ft (about 0.92 acre), usually as a 200-ft square. Each area was divided into four blocks, 100 ft square, each block into four plots, 50 ft square, and each plot into 25 sampling squares, 10 ft square. At weekly intervals, two blocks, two plots within each of these blocks, and two squares within each of these plots were randomly selected and gravimetrically sampled. From each selected square, one King-tube soil sample was obtained from the surface to 6-in. layer and one from the 6- to 12-in. layer--a total of 8 samples weekly from each layer. Individual samples averaged about 50 g, dry weight, of soil. At several of the areas, measurements were made for 10 to 16 weeks during the drier part of the year and again for a similar period in the wet season. The location of study areas, inclusive dates of sampling, and soil and vegetation characteristics are given in table D1.

7. For each week of sampling at each site and depth, the variance (s^2) associated with any single sample, taken at random anywhere in the whole "acre," was computed from the individual mean squares (MS):

$$s^2 = \frac{2\text{MS within plots} + \text{MS between plots within blocks} + \text{MS between blocks}}{4}$$

Standard deviations were derived from these variances.

8. The variance was also partitioned into components: between squares within plots (s_w^2), between plots within blocks (s_p^2), and between blocks (s_b^2). Variances for each area were then averaged for the number of weeks in the study; results are shown in table D2.

9. One of the most striking features is the variation from site to site and sometimes from season to season within a site. The average

Table D1

Soil-moisture Variation Site and Sampling Information

Site Name and Location	Soil Texture	Vegetation	Season	Number of Weeks	Period Covered
Mound Madison Parish, Louisiana	Silty clay	Herbaceous--well stocked	Dry Wet	12 12	Aug 14 to Oct 29, 1953 Jan 14 to Apr 1, 1954
Durden Warren County, Mississippi	Silt loam	Herbaceous--well stocked	Dry Wet	12 12	Aug 13 to Oct 28, 1953 Jan 13 to Apr 1, 1954
Radiation Warren County, Mississippi	Silt loam	Herbaceous--well stocked	Dry Wet	12 12	Aug 13 to Oct 28, 1953 Jan 13 to Apr 1, 1954
Headquarters Ashley County, Arkansas	Silt loam	Forest--70-yr-old loblolly pine	Dry Wet	12 12	Sept 4 to Nov 20, 1953 Dec 24, 1953, to Mar 12, 1954
Pine Flat Bernalillo County, New Mexico	Silt loam	Open forest--pinon pine, oak brush, juniper, perennial grasses, and weeds	Dry Wet	12 16	Aug 28 to Nov 5, 1953 Nov 9, 1953, to Apr 5, 1954
Mesa Mesa County, Colorado	Silt loam	Mountain meadow--sagebrush and herbaceous, 25 per cent bare	Dry	10	Aug 18 to Oct 19, 1953
Escalante Delta County, Colorado	Silty clay loam	Desert--5 to 10 per cent herbaceous, remainder bare	Wet	10	Dec 21, 1953, to Mar 1, 1954
Sortek Oneida County, Wisconsin	Silt loam	Herbaceous--timothy grass, well stocked	Dry	12	Aug 24 to Nov 16, 1953

Table D2

Soil-moisture Variation at Eight Sites

		0- to 6-in. Soil Layer					6- to 12-in. Soil Layer				
			Average	Proportion of Total Variance, %				Average	Proportion of Total Variance, %		
Site Name	Season	Mean Moisture Content, in.	Standard Deviation (s), in.	s_w^2	s_p^2	s_t^2	Mean Moisture Content, in.	Standard Deviation (s), in.	s_w^2	s_p^2	s_b^2
Mound	Dry	1.42	0.09	78	22	0	2.64	0.15	76	16	8
	Wet	2.58	0.20	87	0	13	2.60	0.19	100	0	0
Durden	Dry	1.47	0.34	33	67	0	1.55	0.29	43	57	0
	Wet	2.39	0.25	26	42	33	2.39	0.14	37	37	26
Radiation	Dry	0.74	0.13	94	0	6	1.02	0.21	56	24	20
	Wet	2.17	0.15	76	0	24	2.31	0.23	40	19	41
Head-quarters	Dry	0.80	0.16	70	30	0	0.72	0.16	89	11	0
	Wet	2.10	0.20	63	37	0	2.05	0.15	50	32	18
Pine Flat	Dry	0.74	0.14	58	5	37	0.90	0.12	61	39	0
	Wet	1.76	0.20	51	27	22	1.56	0.22	82	0	18
Mesa	Dry	0.84	0.13	78	5	17	0.88	0.15	72	0	28
Escalante	Wet	0.98	0.46	67	11	22	0.88	0.33	68	18	14
Sortek	Dry	1.56	0.28	100	0	0	1.53	0.33	100	0	0
Mean		----	0.23	68	19	13	----	0.22	67	20	13

standard deviation (square root of the average variance) for the "acre" ranges from 0.09 in. (1.1% by weight) to 0.46 in. (5.8%) in the surface to 6-in. layer, and from 0.12 in. (1.4%) to 0.33 in. (4.1%) in the 6- to 12-in. layer.

10. The magnitude of the variation encountered can in many cases be related to observed site factors. The Escalante site in western Colorado, with greatest variation at both depths, was characterized by scattered clumps of bunch-grasses, with the intervening areas bare. This would naturally lead to considerable variation.

11. The Mesa site in western Colorado also had unevenly distributed vegetation. However, moisture contents were uniformly low through most of the dry period, and variation was much less than at Escalante.

12. Vegetation at the Pine Flat site in New Mexico was mixed pinon pine, juniper, and herbaceous species. Here, variation was large in the wet season but not so large in the dry period.

13. Soil at Durden site in Mississippi, colluvial in origin, was quite variable. Moisture variation in the dry season was large. In the wet season, the variation was much less; the water table at this site was quite close to the surface and, as a result, all samples obtained during this period were more or less uniformly wet.

14. There was also a considerable difference among the sites in the proportion of the total variation that may be assigned to variation between samples within plots, between plots within blocks, and between blocks. The between-block and between-plot variances were probably a measure of the success achieved in laying out uniform plots. At various sites, Mound in Louisiana, Headquarters in Arkansas, and Sortek in Wisconsin, the percentage of total variation attributable to variation between blocks was small, ranging up to 16%. At the Radiation site in Mississippi, between-block variation was high during the wet period; this may be the result of slope at this site and possibly of gradation from one soil type to another. At Durden, about one-fourth mile from the Radiation site, variation between blocks during the wet period (as compared to total variation) was much greater than during the dry period. It is likely that slight differences in elevation of the blocks affected distance from water table of the samples secured and resulted in this larger block variation.

15. At four sites, data were collected in the dry season and again in the wet season. At two of these, Mound and Pine Flat, variation for both depths was much larger in the wet season. For the Radiation site, variation for each layer was about the same in both seasons. At Durden, probably because of the water-table influence, variation in the wet period was less than under dry conditions.

16. The variances and standard deviations so far considered give a measure of the reliability of a single soil-moisture sample in determining the true weekly mean. The actual means determined from 8 samples are of course more reliable. The hypothetical standard deviation of each weekly mean can be determined by dividing the standard deviation by 2.8, the square root of the number of samples. The result will vary somewhat from the true value because the 8 samples were not completely randomized. Thus, if the standard deviation is 0.23 in., the standard deviation of the weekly mean is only 0.08 in.

17. Sampling in this study was from the upper foot of soil only. In order to get a measure of the variation of deeper layers, analysis was made of duplicate samples taken from 6- by 6-ft plots used for calibration of Fiberglas units at the Mound, Durden, and Radiation sites. Standard deviations in percentage by weight of single gravimetric samples are given in table D3. For comparison, corresponding standard deviations of samples within the 50- by 50-ft plots of the variation study are given at the bottom of the table.

18. Variation in the several layers of the upper 4 ft of soil seems to be of the same general magnitude; standard deviations range from about 1 to somewhat over 2% by weight. At Mound, standard deviations were appreciably larger for the second foot, mostly because uneven wetting after summer storms caused several large differences between duplicate samples. Variation within the calibration plots are somewhat less than that within the 50- by 50-ft plots.

19. It might be pointed out that the standard deviation of the mean of 8 samples, about 0.08 in., was very close to the average deviation of about 0.09 in. between predicted and actual for the prediction development sites. A direct comparison is not possible, yet it indicates that the predictions for the prediction development sites may be as accurate as can

Table D3

Soil-moisture Variation by Depth: Standard Deviation (s) of Moisture Content of a Single Gravimetric Sample

Soil Depth, in.	Mound Pairs No.	Mound s, % by Wt	Durden Pairs No.	Durden s, % by Wt	Radiation Pairs No.	Radiation s, % by Wt	All 3 Sites Pairs No.	All 3 Sites s, % by Wt
Within 6- by 6-ft Calibration Plots								
0-3	72	2.0	31	1.9	12	1.4	115	1.9
3-6	72	1.7	32	1.1	12	1.1	116	1.5
6-9	71	2.0	31	1.3	12	1.4	114	1.7
9-12	70	2.1	31	1.4	12	1.3	113	1.8
12-15	42	2.2	31	1.6	--	---	73	2.0
15-18	42	2.8	31	1.4	--	---	73	2.3
12-18	27	2.4	--	---	12	1.6	39	2.2
18-21	40	2.4	28	1.6	--	---	68	2.1
21-24	41	2.4	29	2.2	--	---	70	2.3
18-24	26	2.3	--	---	12	0.8	38	1.9
28-32	58	1.9	26	1.2	12	1.1	96	1.7
40-44	51	1.6	24	1.3	12	1.4	87	1.5
All depths	612	2.1	294	1.5	96	1.3	1002	1.9
Within 50- by 50-ft Plots of Variation Study								
0-6 (dry period)		1.0		2.6		1.6		
(wet period)		2.2		1.7		1.7		
6-12 (dry period)		1.7		2.7		1.8		
(wet period)		2.3		2.0		1.6		

be expected, considering soil-moisture variation over small areas. This variation also accounts for some, but not all, of the deviation of predicted from measured reported for the survey sites. Therefore, there still is room for considerable improvement in average relations.

APPENDIX E: SOLAR RADIATION AND OTHER METEOROLOGICAL FACTORS AND SOIL-MOISTURE DEPLETION ON LOESS NEAR VICKSBURG, MISSISSIPPI

Objectives of Study

1. A study was established at the Waterways Experiment Station in February 1953 to investigate the relation of solar radiation and other meteorological factors to the rate of soil-moisture depletion. Previous analysis on a daily basis had failed to show correlation between soil drying in the surface to 12-in. layer and simple climatic factors, such as mean air temperature. However, the relation between water (soil moisture) loss and radiation, as well as other climatic factors, is quite definite from a causative point of view. Clarification of any such relation might make possible the estimation of moisture loss from some meteorological measure. Correlation with one or more climatic factors would aid in the selection of the transition dates for the seasonal depletion curves, as well as in the selection of the curves themselves.

2. In addition to the investigation of the relation between amount of radiation and soil-moisture depletion, the study had certain secondary objectives. These were: (1) to study the relation of other climatic factors, including evaporation measurements, to the rates of soil-moisture loss; (2) to check the utility of derived depletion curves compared to climatic factors in correlations with measured moisture losses; (3) to study several instruments for radiation measurement, including the total radiometer, the net radiometer, the pyrheliometer, and the actinometer, and to determine the advantages of each; and (4) to study the relation between amount of radiation and several types of climatic measurements, including air temperature, evaporation, and humidity.

Study Area and Instrumentation

Features of test area

3. The study was established in a level, open upland of about 4 acres at the Waterways Experiment Station in February 1953. The area had

a grass cover and was mowed periodically during the summer.

4. The soil was Memphis silt loam of loessial origin with fair to good internal drainage. A detailed description of soil characteristics is presented in Report 4, table C1, under the heading "Vicksburg, Warren Co., Radiation (all sites)"; climatic data are given in table E1 of the same report.

5. Vegetation on the site was typical of abandoned fields of this area and consisted primarily of weedy grasses, composites, and a few other plants. The most prominent species were hop clover (Trifolium agrarium), nut grass (Cyperus rotundus), sedge (Cyperus grayii), plantain (Plantago sp.), Johnson grass (Sorghum halepense), hogweed (Ambrosia artemisifolia), frostflower (Aster sp.), goldenrod (Solidago sp.), and Bermuda grass (Cynodon dactylon).

6. The test area, about 40 ft by 140 ft, was located on a level spot, not subject to shading by trees surrounding the area, and was fenced to keep vehicles out. An instrument shack was erected in one corner of the area to house the recording potentiometers for three of the radiation instruments, and the terminals from the three tiers of Fiberglas moisture units.

Soil-moisture measurements

7. Two tiers of Fiberglas units were installed in February 1953. One, called the herbaceous tier, was located near the center of the test area, fig. E1. The area adjacent to this tier, roughly 30 by 60 ft, was left unmowed and undisturbed for the duration of the study. A second tier of units was installed next to the herbaceous area but surrounded by a bared area 10 ft in radius which was maintained bare by chemicals and hand-weeding. A third tier of units was installed in March 1954 to the north of the bare area. The vegetation over this tier was mowed by hand whenever the meadow around the test area was mowed.

8. Four sampling plots were set out about each tier of units. The units were calibrated in the field by gravimetric sampling in the same manner used in other Vicksburg studies. Soil-moisture and temperature measurements were made five times a week at about 8 AM.

Climatic measurements

9. The weather instruments maintained at the test area included

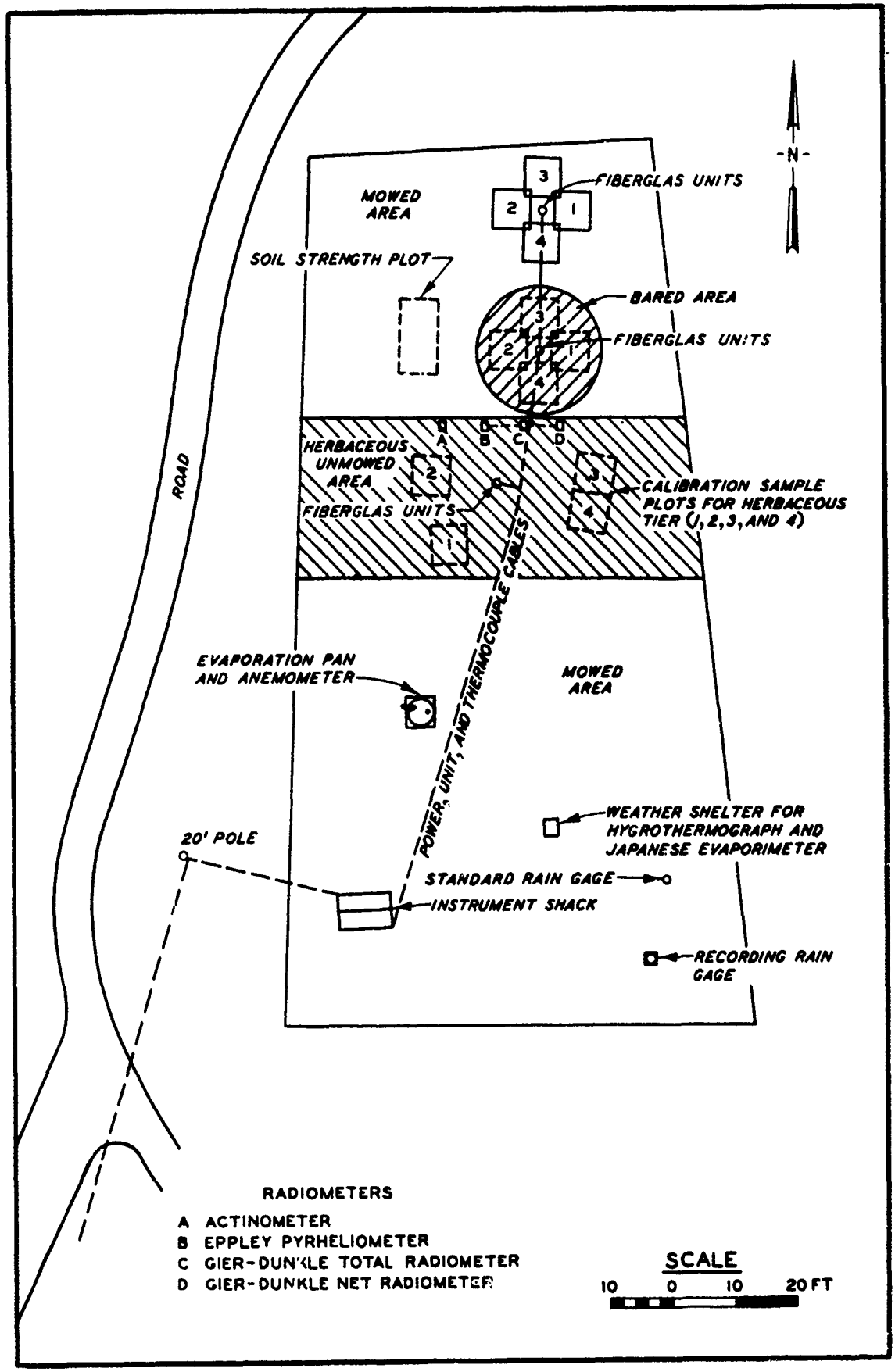


Fig. E1. Location of instruments and plots - solar radiation site

four types of radiometers, two evaporation instruments, two precipitation gages, an anemometer, and a hygrothermograph. The radiometers were mounted 5 ft above the ground on posts set between the herbaceous and bare areas (fig. E1). The other weather instruments were arranged between the herbaceous area and the instrument shack at different spots to minimize interference with each other.

10. Radiometers. Two of these instruments, the Gier-Dunkle net and total radiometers, were installed on February 28, 1953. The other two, the Eppley pyrheliometer and the actinometer, were not received until December 1953, and were installed at that time. A brief description of each instrument follows:

a. The net exchange radiometer (Gier-Dunkle) consists of a flat plate about 4-1/2 in. square and 3/64 in. thick, made of three Bakelite plates sandwiched between two aluminum sheets. This plate is essentially a heat-flow meter; the center Bakelite plate holds thermopiles which are the sensing elements. These thermopiles are wired to a Weston recorder. The plate is mounted in a plane horizontal to the surface of the soil, and the heat transfer by radiation from the sky less the "back radiation" from the earth's surface is measured as the net exchange. A small blower is used to maintain equal thermoconductance for both surfaces.

b. The total radiometer (Gier-Dunkle) is similar to the net exchange radiometer, save that a shield is placed on the underside so that only radiation received on the upper side is measured. The temperature of the plate is also measured, and these sensing elements are also wired into a Weston recorder. This measures the total amount of radiation received and takes no account of the radiation which is reradiated from the surface of the soil. A small blower maintained air temperature around the thermopile.

c. The Eppley pyrheliometer consists of a thermopile mounted under receivers inside a clear glass, hemispherical bulb about 3 in. in diameter. The receivers are concentric, flat, metal rings exposed in the same plane. One ring is coated with magnesium oxide, the other with lampblack. The difference in temperature of these two rings produces a current across the thermopile, which is wired to a Weston recorder. The two receivers are similar in regard to absorption of long-wave radiation. This tends to minimize the effect of long-wave radiation so that the over-all response of the instrument is primarily to solar radiation.

d. The actinometer (Instruments Corp.) is a self-contained recording instrument, again for the measurement of solar radiation. The sensing element consists of two strips of

the same metal. The top of one is painted black, and the top of the other is polished and protected by a nickel-plated strip. As the temperature changes between the two strips, a pen is moved on a clock-operated drum.

11. Atmospheric moisture and related measurements. The evaporation pan was the U. S. Weather Bureau type, copper, 4 ft in diameter and 10 in. deep, equipped with a stilling well. The pan was mounted on a wooden platform about 4 in. off the ground. The anemometer was mounted on the platform next to the pan, with the cups about 2 ft above the ground. The water level in the pan was measured with a hook gage five times a week, and the pan was refilled or partially emptied when necessary and a new level established. Concurrent readings were made of the anemometer.

12. A hygrothermograph and a Japanese evaporimeter were housed in a standard weather instrument shelter about 30 ft away from the evaporation pan. The hygrothermograph was clock-run with a seven-day chart. Temperature and humidity were checked periodically with a mercury thermometer and sling psychrometer which were kept in the weather shelter. The Japanese evaporimeter was a miniature well recorder, with water evaporating from the well through a wick and filter-paper disc. The well was refilled periodically when low and a new level established as was done for the standard evaporation pan. The height of water in the well was recorded on a clock-driven chart making one rotation a day. The chart was changed once a week or whenever the well was replenished. The unit was self-contained in a box about the size of a hygrothermograph.

13. Both standard and recording rain gages were maintained. The standard gage was measured on weekdays whenever precipitation occurred; week-end precipitation was accumulated. The recording gage was equipped with a 24-hr chart which was changed after each rain of 0.25 in. or at least once a week.

Analyses

Period of record

14. The object of the study was to determine how closely solar radiation and other weather factors correlate with soil-moisture losses. In order that proper comparisons between the correlations can be made, all

factors under consideration must be measured on the same days or over the same periods. Differences in time of installation, instrument failure, breaks in the record occurring on week ends when the site was not visited, and periods of rainfall seriously reduced the number of days with parallel records for all factors. The Eppley pyrheliometer was selected as standard for measurement of solar radiation because it is more widely used than the other three radiometers and was not subject to frequent shutdowns as were the Gier-Dunkle radiometers. Choice of the Eppley limited the usable record to 1954. The various factors in the analyses were usually related to measured soil-moisture loss. As weather factors are best related to evapotranspiration when soil moisture is plentiful*,**, the usable record was arbitrarily limited to those times when moisture content was greater than 50% of the range between field-maximum and -minimum values. Days on which rainfall occurred obviously could not be used, as moisture losses are considered, not gains.

15. It was further found after the first few analyses that solar radiation data showed less variability and better correlation with other factors if summations of the data for a period of days rather than daily values were used. This is shown clearly in the following comparison.

Factor Correlated to Moisture Loss	Correlation Coefficient (r)	
	One Day	Three Days
Solar radiation (Eppley)	0.196	0.760
Air temperature, mean	0.220	0.599

With the three-day period the magnitudes of the factors are much larger than for a single day. With larger values the relative amount of variation due to measurement techniques, natural variation in occurrence of the factor, or in other factors is apparently reduced, giving better correlations. The three-day sum was used in this study, which permitted bridging the two-day break in the moisture record over the week end; nevertheless, as a result of this break, three out of seven day-to-day comparisons per week were

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* H. L. Penman, "Natural evaporation from open water, bare soil and grass," Proceedings, Royal Society of London, Series A (1948), 193:120-145.

** C. W. Thornthwaite, "An approach toward a rational classification of climate," The Geographical Review, vol 38, No. 1 (January 1948), 38:55-94.

lost. Crabb,* at East Lansing, Mich., and others also have found better trends with radiation data when analyzed as a moving sum or average for a period of days rather than as daily values.

16. With all these interruptions in the record, only 30 usable three-day periods were available. Twelve of these had overlapping records, having one or two days in common. The more frequent shutdowns of Gier-Dunkle radiometers reduced the number of comparisons among radiometers to 21.

17. The 30 three-day periods were distributed throughout the year, 14 in winter, 10 in spring, four in early summer, and two in late autumn. Because of dry soil conditions, despite intermittent rains, no usable periods occurred from early in June to mid-November. No comparisons by season were attempted with the few values available.

Data limitations

18. The small number of comparisons may be sufficient to show trends, but many more would be desirable to verify the correlations between the factors. The meager data point out the need for measurements on seven days a week over several years for similar studies.

19. Only moisture losses from the uncut herbaceous plot were used. The mowed plot record was only nine months long in 1954 and the rates of moisture loss from it were similar to those of the unmowed plot. This similarity was shown in the moisture-prediction studies reported in Report 4 of this series. The moisture measurements by resistance units on the bare plot were influenced by the chemicals used to kill weeds; therefore, this record was not considered reliable, and was not used.

20. Correlations between weather factors and moisture loss were desired to extend prediction for trafficability. For trafficability, moisture contents in the 6- to 12-in. soil layer can be critical, so correlations with moisture loss in this layer were desired. It was found, however, that moisture loss in this layer over a three-day period was small and did not give high correlations with changes in weather factors. Correlation was improved with inclusion of the surface to 6-in. layer as may

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* George A. Crabb, Jr., Solar Radiation Investigations in Michigan, Technical Bulletin 222 (Michigan Agricultural Experiment Station, 1950), 153 pp.

be seen from the following comparison of correlation coefficients for the three layers.

Layer in.	Correlation Coefficient (r) Langlies (Eppley)	Sum Air Temp	Mean Air Temp	Max Air Temp	Avg (3-day) Moisture Loss, in.
0-6	0.650	0.605	0.565	0.479	0.184
6-12	0.574	0.292	0.292	0.342	0.033
0-12	0.760	0.636	0.599	0.535	0.217

The effect must be similar to that previously mentioned with the one-day versus three-day measurement period. The 6- to 12-in. layer exhibited the poorest correlations but it also had the smallest amount of moisture loss. Consequently moisture losses in the entire surface to 12-in. layer were used throughout the analyses.

Compilation of data

21. Solar radiation data of the Eppley and Gier-Dunkle radiometers were recorded by potentiometers on a moving chart as a continuous trace. By means of a scale, values could be read at any point in terms of Langlies.* The fluctuations of the trace were frequently great, due to passage of broken clouds, wind gusts, etc., making it difficult to sum the area under the trace even with a planimeter. The chart was subdivided into 20-minute intervals, and a mid-point assigned to the trace for this interval considering the area under the fluctuations by sight and simple computations. Three intervals were averaged for an hourly value, and the average hourly values were added over the three-day period. The temperature correction for the total radiometer was small and was not used. The actinometer charts were read by adding the number of squares in the chart divisions below the trace allowing for fluctuations. This instrument was not calibrated to Langlies.

22. The evaporation pan values represent the lowering of water height over the three-day period measured with a hook gage to the thousandths of an inch. The Japanese evaporimeter values are differences in chart scale divisions representing water level drop in this instrument. Anemometer values are in miles of air movement during the three-day period.

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* A Langley is a gram-calorie per square centimeter.

23. Relative humidity was read from the chart at two-hour intervals from 10 AM to 4 PM, and averaged. The averages were summed for the three days as an expression of relative humidity. Daytime values only were used because humidity at night generally reaches almost 100 per cent regardless of the daytime value, and soil-moisture losses at night are nil. For vapor pressure deficit, temperatures were averaged for times corresponding to humidity measurements, a deficit determined from these averages for the day, and the three daily values summed.

24. The expression for air temperature mean was the daily mean, midpoint between the maximum and minimum temperature, summed for three days. The air temperature sum was the hourly temperature summed over three days. The air temperature maximum was the sum of the three daily maxima. The soil temperature expression was the sum of soil temperatures at the 1-1/2-, 4-1/2-, 7-1/2-, and 10-1/2-in. depths for the first and last day of each period. The omission of the intervening days was necessary because soil measurements were not made on week ends. Twelve of the 30 three-day periods covered week ends.

25. Soil-moisture losses were inches of water per given soil layer over the three-day period. As stated earlier, the values were obtained from the moisture record for the herbaceous site, and were also interpolated from the depletion curve derived for this site given in Report 4, and from the average depletion curve applicable to silt loam soils given in the main body of this report (Report 5).

Correlations

26. The analyses of these values were confined to single and multiple linear correlations to show any associated variation between dependent and independent variables. High correlation would indicate that one or a group of variables might be useful in extending estimation of a dependent variable needed in trafficability prediction, such as rate of moisture loss, into areas where the latter is unknown but where some knowledge of the other variables exists. High correlation does not imply a cause-and-effect relation, merely association.

27. Linear regressions were first computed between the various factors, individually, and soil-moisture loss to see which had highest correlation. Groups of factors were then tested by multiple regression to see

if correlation would be materially improved. Correlations were then made between moisture losses from derived or average depletion curves and measured losses for comparison with those by weather factors. Finally some of the instruments were tested against each other to examine their relative merits.

28. Values on which these analyses were based are presented in tables E1-E3.

Results and Discussion

Relation of climatic factors to soil-moisture loss

29. Correlations of measured moisture loss with individual environmental factors. The association of individual weather or environmental factors with measured soil-moisture loss is expressed by the following correlation coefficients:

Factor	Correlation Coefficient (r)
Soil temperature	0.791
Evaporation from pan	0.790
Solar radiation (Eppley)	0.760
Air temperature, sum	0.636
Air temperature, mean	0.599
Air temperature, maximum	0.535
Vapor pressure deficit	0.521
Evaporation from evaporimeter	0.483
Relative humidity	0.214
Wind	0.075

30. It will be noted that soil temperature and evaporation pan losses are both closely correlated with measured moisture loss. These factors may be considered integrating expressions in that they not only reflect air temperature and solar radiation during the three-day period of measurement but also for some days preceding the period of measurement. The pan further reflects wind, humidity, and perhaps dew fall which may influence soil-moisture loss. Soil temperature influences the rate of evaporation, and of water movement through the soil, and into and through the roots. Hence, it is understandable that these factors have higher correlations with moisture loss than other directly causative and more

specific factors such as solar radiation or air temperature. Solar radiation is also highly associated with soil-moisture loss, but slightly less than soil temperature or evaporation pan losses. Air temperature has been widely used to estimate potential evapotranspiration, hence it is worth noting that the correlation coefficients for air temperature expressions are considerably lower than those for radiation. The air temperature sum agrees considerably better than the air temperature mean, which in turn is better than maximum air temperature. Vapor pressure deficit, which includes within it a measure of temperature as well as relative humidity, has a slightly lower correlation than air temperature itself. The Japanese evaporimeter losses show less correlation which is surprising as the standard evaporation pan correlation is so high. Relative humidity shows a very weak relation, and wind a negligible one. It should be remembered throughout that these associations, expressed by the correlation coefficients, refer to the measured soil-moisture loss from the surface to 12-in. depth only, and over a three-day period.

31. Correlations of combinations of factors with measured soil-moisture loss. Multiple regressions were next run to see if groups of factors would materially improve correlation over that from individual factors. The correlations obtained with moisture loss are listed below:

Factors Correlated to Moisture Loss	Multiple Correlation Coefficient (R)
Soil temperature Air temperature, mean	0.808
Evaporation pan losses Air temperature, mean	0.798
Radiation Air temperature, mean	0.770
Soil temperature Radiation Wind Humidity	0.823
Soil temperature Radiation Air temperature, mean Wind Humidity	0.842

(Continued)

Factors Correlated to Moisture Loss	Multiple Correlation Coefficient (R)
Soil temperature Evaporation pan losses Radiation Air temperature, mean Wind Humidity	0.843
Soil temperature Evaporation pan losses Radiation	0.831

32. Several interesting associations are indicated in these correlations. No great improvement in correlation is gained when each of the three best individual correlators with moisture loss are grouped with the air temperature mean. Air temperature does not contribute much in these combinations. When soil temperature and solar radiation are combined with other factors there is a marked improvement in correlation. In these combinations, evaporation pan values increase correlation more than wind and humidity, but not as much as air temperature plus wind and humidity. Evaporation cannot equally substitute for air temperature, wind, and humidity, and when the latter three are in combination with soil temperature and solar radiation, the addition of evaporation does not affect the correlation.

33. Contribution from various factors to moisture losses determined by multiple regressions. The relative contribution of various factors was also determined for the major environmental factors utilizing multiple regression techniques and determining the standard regression coefficients and their relative values.

Factor	Correlation Coefficient of Simple Regressions (par. 29) Correlation Coefficient (r)	Relative Contribution from Standard Regression Coefficients in Multiple Regression A Including Evap Pan Values	B Without Evap Pan Values
Soil temperature	0.791	28.5	15.2
Evaporation pan losses	0.790	28.0	----
Radiation (Eppley)	0.760	19.0	8.4
Relative humidity	0.214	8.0	1.0
Wind	0.075	5.0	2.9
Mean air temperature	0.599	1.0	7.9

The preponderant influence of soil temperature and radiation on moisture loss again appears in the ranking of the standard regression coefficients, suggesting further that these factors are more suitable for extending the prediction system than are other factors.

Evaluation of moisture depletion curves

34. For purposes of extending trafficability forecasts into relatively unknown areas, correlations of environmental factors with depletion curves may be more useful than correlation of these factors with measured moisture losses. With some knowledge of the meteorology of a region, the proper depletion curves may be selected if a correlation of curves to climatic factors is known. The depletion curves show rates of moisture loss, depicting average losses for a given soil layer and season. The curves may be derived for a specific site or averaged from a group of sites. Both types of curves were used in deriving the following correlations.

Correlation with Depletion Curve	Correlation Coefficient (r)
Radiation (Eppley) vs loss by average depletion curve	0.750
Radiation vs loss by specific depletion curve	0.718
Moisture loss by average depletion curve vs measured moisture loss	0.658
Moisture loss by specific depletion curve vs measured moisture loss	0.853
Moisture loss by specific depletion curve, radiation, soil temperature, and evaporation pan vs measured moisture loss	0.891

35. Moisture losses by depletion curves correlated well both with radiation values and measured moisture losses, indicating that climatic factors may be helpful in selecting curves. The specific depletion curve values correlate with measured moisture losses better than any single or combination of climatic factors tabulated in paragraphs 31 and 33, showing that the curves estimate moisture losses with some measure of success. Depletion curves were derived from data of previous years, whereas

meteorological and soil-moisture loss measurements were made later and on the same days. The correlation is improved with a combination of depletion curves and climatic factors indicating that the depletion curves can be improved if allowance is made for climatic conditions. At present, selection of curves is made only on the basis of soil properties.

Comparisons between instruments

36. An evaluation of radiometers was also made by correlations as shown below. Only 21 periods of measurement with parallel records for all radiometers were available.

	Correlation Coefficient (r) Dependent Variable	
Radiometer	Eppley	Soil-moisture Loss
Eppley		0.722
Net exchange	0.968	0.682
Total	0.961	0.729
Actinometer	0.989	0.721

37. For correlations with the Eppley as the standard and with soil-moisture loss, all radiometers have equivalent results for purposes of this study. The net exchange and total radiometers were least desirable because of frequent shutdowns. The actinometer is considered adequate for the accuracy required in this type of study. The instrument costs the least, requires no power source, and is simple to operate. Also actinometer charts were much easier to read than those of the recording potentiometers.

38. The standard evaporation pan was superior to the Japanese evaporimeter, the former having a correlation coefficient of 0.790 with moisture loss whereas the latter had a coefficient of 0.483. The correlation between instruments was 0.685, much less than that between radiometers. The location of the Japanese evaporimeter inside the weather shelter, as well as the construction of the evaporating surface--a filter paper fed by a wick--probably accounts for its inferior results.

Concluding Statement

39. It will be noted from the tables of correlation coefficients, that in all cases radiation is closely correlated with soil-moisture loss, whether or not it is a direct cause thereof. This, of course, fits nicely

with the theoretical concept that evapotranspiration is primarily a result of the energy balance occurring on the surface of the earth, a concept which has been extended and utilized particularly by H. L. Penman,* who includes net radiation as a major factor in his evapotranspiration formula. If measured radiation data were available on a wide scale, it would appear possible to make some use of it in extending the prediction system. Such data are, however, not widely collected.

40. The apparent close relation of pan evaporation to soil-moisture loss also suggests an opportunity for the extension of the prediction system to noncontact areas, utilizing this metecrological factor. Here again, data are restricted in distribution. Kohler,** as well as others, are deriving techniques for estimating pan evaporation from various meteorological criteria, so it may be possible later to use this factor. However, his present equation requires knowledge of radiation, air temperature, dewpoint and wind values, several of which are limited in availability.

41. Several lessons can be learned from this study. Among them is the fact that integrating factors, like soil temperature or evaporation, appear to be of more use in extending the prediction system than do simple factors such as mean air temperature.

42. Mean temperatures have been used extensively. In the future perhaps it will be possible to make more use of the sum of air temperature or of soil temperature, each of which shows a better correlation with moisture loss than do the means.

43. The finding that values determined from previously derived soil-moisture depletion curves correlate with measured moisture loss better than the concurrently measured meteorological factors, singly or in combination, indicates that the soil-moisture prediction method developed on this project has value, and may prove more accurate than others based primarily on meteorological considerations. The finding also points out that soil factors as well as meteorological ones must be considered when accounting for soil-moisture losses.

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* Loc. cit.

** Max A. Kohler, Computation of Evaporation and Evapotranspiration from Meteorological Measurements (U. S. Department of Commerce, Weather Bureau, 1957).

Table E1

Soil-moisture Loss and Radiation Values from Radiation Site, 1954

Data	Radiation Measurements, Langlies: Eppley Pyrheliometer Daily	Eppley Pyrheliometer 3-day	Total Radiometer Daily	Total Radiometer 3-day	Net Radiometer Daily	Net Radiometer 3-day	Radiation Measurements Box Units: Actinometer Daily	Actinometer 3-day	Measured Soil-moisture Loss, in. 0- to 12-in. Layer: Daily	3-day
1/4	177.3		31.8		26		17		-0.03*	
1/5	303.9		108.3		143		28		0.03	
1/6	321.3	802	192	332	156	325	27	72	0.04	0.04
1/7	311.7	937	178.5	479	82	381	28	83	0.02	0.09
1/11	350.1		214		139		30		0.12	
1/12	191.7		90.5		85.5		18		0.07	
1/13	235.2	777	216	520	136.5	361	20	68	0.01	0.20
1/22	70.4		30.5		16		8		0.13	
1/23	85.2		54.5		14.5		6		0.00	
1/24	189.9	346	127	212	107.5	106	17	31	0.00	0.13
2/1	366.4		241		189.5		34		0.07	
2/1	370.2		240.5		196		34		0.03	
2/3	385.0	1122	242.5	724	202	588	38	106	0.06	0.16
2/4	392.8	1148	259.5	742	229.5	528	39	111	0.06	0.15
2/5	398.2		275		240.5		38		----	
2/6	374.2		276.5		256		37		----	
2/7	421.8	1194	316.5	868	264	760	40	115	0.07	0.07
2/12	424.5								----	
2/13	364.2								----	
2/14	249.9	1039							0.09	0.09
2/20	411		318.5		213		39		0.23	
2/21	463.1		354.5		265		39		----	
2/22	416.7	1291	309	982	263.5	742	42	120	0.17	0.40
3/5	423.7		415		268.5		45		----	
3/6	514.3		467.5		289.5		52		----	
3/7	538.9	1477	478.5	1361	296.5	854	54	151	0.23	0.23
3/15	576.3		407.5		319.5		57		0.04	
3/16	523.8		343		279.5		56		0.06	
3/17	424.5	1525	280	1030	198	798	46	159	0.02	0.12
3/19	479.7		368		313		49			
3/20	505.8		393		279		58			
3/21	479.1	1465	378	1439	229	821	56	163	0.34	0.34
3/22	493.5								0.15	
3/23	175.5								0.02	
3/24	331.2	1000							0.04	0.21
4/5	382.8								0.12	
4/6	594								0.12	
4/7	471	1448							0.10	0.34
4/12	359.7								0.10	
4/13	546.6								0.11	
4/14	553.2	1460							0.15	0.36
4/16	365.1								----	
4/17	676.5								----	
4/18	660.9	1702							0.47	0.47
4/19	691.2		621		430		68		0.18	
4/20	659.7		629.5		414		80		0.13	
4/21	621.6	1972	579	1830	401	1245	72	220	0.12	0.43
4/22	558.6	1840	559	1768	386.5	1202	65	217	0.07	0.32
5/3	202.5		98.5		104		18		0.25	
5/4	726.9		592		430		84		0.09	
5/5	717.3	1647	596	1286	482	1016	86	188	0.09	0.43
5/6	660	2104	546	1734	449	1361	86	256	0.13	0.31
5/17	619.8		678		419		67		0.10	
5/18	390.6		397		229.5		49		0.04	
5/19	612	1622	664	1739	456	1104	72	188	0.10	0.24
5/20	726.9	1730	666	1727	511	1196	92	213	0.09	0.23
5/21	712.5		610.5		446		85		----	
5/22	699.9		614		385		86		----	
5/23	656.4	2069	600.5	1825	427	1258	77	248	0.37	0.37
6/4	749.4								----	
6/5	697.2								----	
6/6	708.6	2155							0.37	0.37
11/19	119.4								----	
11/20	357.6									
11/21	347.4	824							0.05	0.05
12/3	306.6		177.6		197.7		27		----	
12/4	137.7		15.6		137.1		13		----	
12/5	200.7	645	117.3	370	204.3	539	18	58	0.04	0.04
12/13	47.4		-45.6		4.5		9		0.07	
12/14	311.1		155.4		216.3		21		0.04	
12/15	329.1	688	142.8	253	182.1	403	27	57	0.06	0.17
12/16	308.1	948	158.4	457	248.1	646	27	75	-0.03*	0.07
12/17	142.2								----	
12/18	193.2								----	
12/19	331.5	667							0.07	0.07
12/20	303.9								0.01	
12/21	317.1								0.00	
12/22	291.6	913							0.00	0.01

* Indicates gain in soil moisture as a result of continued accretion.

Table E2

Air and Soil Temperature Values from Radiation Site, 1954

Date	Air Temperature, °F						Soil Temperature, °F	
	Maximum		Mean		Sum*		At 7-1/2-in. Depth**	Sum†
	Daily	3-day Sum	Daily	3-day Sum	Daily	3-day	Daily Reading	3-day Value
1/4	68		50		1247		46	
1/5	63		48		1201		48	
1/6	64	195	48	146	1064	3512	46	362
1/7	71	198	51	147	1123	3388	44	363
1/11	50		39		905		46	
1/12	38		33		795		44	
1/13	53	141	32	114	736	2656	42	357
1/22	36		34		859		49	
1/23	40		36		874		--	
1/24	66	142	53	123	1302	2987	48	386
2/1	72		52		1216		48	
2/2	72		55		1251		49	
2/3	73	217	55	162	1311	3778	48	373
2/4	72	217	51	161	1179	3741	48	380
2/5	68		50		1179		48	
2/6	70		52		1218		--	
2/7	45	183	38	140	942	3339	46	362
2/12	57		45		1056		51	
2/13	73		54		1307			
2/14	79	209	70	169	1646	4009	56	420
2/20	62		55		1351		56	
2/21	74		55		1306		52	
2/22	76	212	58	168	1362	4019	52	426
3/5	52		45		1062		47	
3/6	52		45		1063			
3/7	66	170	48	138	1117	3242	50	378
3/15	56		45		1060		52	
3/16	60		44		1078		49	
3/17	67	183	51	140	1210	3348	50	402
3/19	80		69		1631		56	
3/20	70		58		1395			
3/21	64	214	54	181	1298	4324		442
3/22	82		65		1566		56	
3/23	78		70		1682		58	
3/24	84	244	77	212	1834	5082	61	467
4/5	84		74		1769		64	
4/6	86		75		1790		65	
4/7	88	258	77	226	1829	5388	66	526
4/12	78		69		1674		68	
4/13	86		71		1737		67	
4/14	86	250	74	214	1770	5181	67	539
4/16	68		56		1449		67	
4/17	78		59		1396			
4/18	81	227	63	178	1541	4386		519
4/19	80		64		1561		64	
4/20	83		68		1616		65	
4/21	85	248	68	200	1644	4821	65	521
4/22	85	253	71	207	1682	4942	68	522
5/3	56		50		1328		70	
5/4	66		54		1272		63	
5/5	72	194	58	162	1384	3984	62	529
5/6	78	216	62	174	1496	4152	64	511
5/17	86		70		1672		66	
5/18	80		71		1677		67	
5/19	84	250	73	214	1713	5062	67	532
5/20	72	236	60	204	1510	4900	68	528
5/21	77		60		1477		66	
5/22	83		66		1576			
5/23	86	246	74	200	1660	4713	67	528
6/4	80		67		1594		72	
6/5	85		68		1643			
6/6	90	255	73	208	1767	5004	72	576
11/19	56		50		1205		58	
11/20	67		53		1222			
11/21	74	197	54	157	1249	3676	52	430
12/3	68		50		1111		52	
12/4	74		57		1393			
12/5	76	218	66	173	1532	4036		407
12/13	44		37		1002		50	
12/14	58		42		961		47	
12/15	61	163	44	123	1037	3000	48	365
12/16	65	184	45	131	1120	3118	44	369
12/17	59		46		1192		48	
12/18	50		42		994			
12/19	52	161	39	127	908	3094		350
12/20	57		40		909		42	
12/21	70		49		1090		42	
12/22	70	197	52	141	1206	3205	44	336

* The sum of air temperature represents the sum of 24 hourly readings for each day of record.

** Soil temperature is given for one depth as an indication of prevailing temperature conditions.

† The sum of soil temperature is the sum of temperature readings for the 1-1/2-, 4-1/2-, 7-1/2-, and 10-1/2-in. depths for the first and last days of the 3-day period.

Table E3

Miscellaneous Climatic Values from Radiation Site, 1954

Date	Relative Humidity, % Daily Mean	Relative Humidity, % 3-day Sum	Vapor Pressure Deficit mm Hg Daily Mean	Vapor Pressure Deficit mm Hg 3-day Sum	Evaporimeter Loss (Jap.) Scale Div 24-hr Total	Evaporimeter Loss (Jap.) Scale Div 3-day Total	Evaporation Pan Loss, in. 24-hr Total	Evaporation Pan Loss, in. 3-day Total	Wind, miles 24-hr Total	Wind, miles 3-day Total
1/4	54		6.9		2.6		0.013		11	
1/5	38		7.4		3.3		0.088		10.6	
1/6	22	114	10.4	24.7	4.5	10.4	0.095	0.196	12.8	34.4
1/7	27	87	6.9	24.7	5.4	13.2	0.081	0.264	10.5	33.9
1/11	52		3.2		1.3					
1/12	54		2.4		2.1				39	
1/13	44	150	3.7	9.3	3.8	7.2	0.141	0.141	23.3	62.3
1/22	100		0.0		0.3					
1/23	100		0.0		0.7					
1/24	75	275	3.6	3.6	3.1	4.1	0.066	0.066	57.2	57.2
2/1	67		4.9		4.7		0.101		10.8	
2/2	43		9.5		3.8		0.112		11.4	
2/3	34	144	11.2	25.6	6.6	15.1	0.150	0.363	23.3	45.5
2/4	33	110	10.4	31.1	4.0	14.4	0.118	0.380	16.4	51.1
2/5	37		10.6		5.3					
2/6	36		4.9		5.7					
2/7	67	140	2.7	18.2	3.2	14.2	0.344	0.344	85.5	85.5
2/12	36		6.5		3.4					
2/13	43		8.6		5.0					
2/14	74	153	5.4	20.5	1.7	10.1	0.291	0.291	85.7	85.7
2/20	47		7.0		7.9		0.157		32.6	
2/21	28		14.0		5.5					
2/22	28	103	15.9	36.9	7.4	20.8	0.283	0.440	21.0	53.6
3/5	50		4.4		3.7					
3/6	39		7.7		3.7					
3/7	34	123	8.7	20.8	4.9	12.3	0.397	0.397	71.8	71.8
3/15	36		6.6		5.0		0.179		39.2	
3/16	28		9.0		6.0		0.161		32.2	
3/17	43	107	7.3	22.9	5.0	16.0	0.128	0.468	20.3	91.7
3/19	60		9.4		7.8					
3/20	66		6.1		5.9					
3/21	52	178	5.7	21.2	4.3	18.0	0.613	0.613	122.6	122.6
3/22	38		15.6		11.6		0.232		63	
3/23	88		4.0		4.4		0.072		49	
3/24	72	198	5.9	25.5	9.0	25.0	0.202	0.506	88.1	200.1
4/5	77		7.3		5.3		0.168		38.3	
4/6	63		9.8		7.6		0.242		51	
4/7	64	204	10.0	26.6	10.1	23.0	0.206	0.616	46.6	135.9
4/12	85		3.2		3.0		0.134		19.2	
4/13	65		9.8		4.3		0.164		10.3	
4/14	59	209	14.6	27.6	7.2	14.5	0.215	0.513	34	63.5
4/16	72		3.1		3.6					
4/17	35		13.7		5.6					
4/18	40	147	14.5	31.3	8.1	17.3	0.569	0.569	70.6	70.6
4/19	54		10.1		6.3		0.209		25.4	
4/20	54		11.1		5.5		0.220		16.7	
4/21	53	161	11.6	32.8	4.8	16.6	0.184	0.613	10.4	52.5
4/22	67	174	9.8	32.5	3.9	14.2	0.174	0.578	10.2	37.3
5/3	87		1.8		1.0		0.084		26.7	
5/4	47		8.1		3.9		0.189		19.4	
5/5	42	176	9.7	19.6	5.2	10.1	0.214	0.487	15.4	61.5
5/6	44	133	12.0	29.8	4.9	14.0	0.189	0.592	12.5	47.3
5/17	64		9.6		5.2		0.212		13.7	
5/18	87		3.9		3.2		0.120		7.7	
5/19	56	207	12.8	26.3	5.6	14.0	0.252	0.584	17.8	39.2
5/20	40	183	11.5	28.2	5.8	14.6	0.268	0.640	19.5	45.0
5/21	37		14.5		4.6					
5/22	38		18.1		5.1					
5/23	41	116	14.7	47.3	4.8	14.5	0.653	0.653	26.7	26.7
6/4	46		13.1		5.4					
6/5	43		14.8		4.7					
6/6	45	134	18.0	45.9	6.2	16.3	0.762	0.762	40.2	40.2
11/19	86		1.6		1.9					
11/20	37		9.7		4.9					
11/21	27	150	14.0	25.3	1.2	8.0	0.175	0.175	27.2	27.2
12/3	38		5.2		2.6					
12/4	75		4.3		4.8					
12/5	48	161	10.3	19.8	7.0	14.4	0.242	0.242	101.7	101.7
12/13	79		2.0		1.0		0.013		5.7	
12/14	44		5.4		2.3		0.065		13.8	
12/15	23	146	8.9	16.3	3.8	7.1	0.078	0.156	10.2	29.7
12/16	24	91	10.2	24.5	5.5	11.6	0.012	0.155	31.7	55.7
12/17	58		4.4		3.1					
12/18	65		2.7		1.9					
12/19	33	156	5.6	12.7	2.1	7.1	0.141	0.141	53.0	53.0
12/20	43		4.9		2.6		0.043		6.8	
12/21	36		9.8		4.9		0.081		19.6	
12/22	40	119	9.2	23.9	2.9	10.4	0.067	0.191	5.0	31.4

APPENDIX F: A STUDY OF CULTIVATION AND SOIL PROPERTIES THAT AFFECT TRAFFICABILITY

Purpose of Study

1. In order to test the effects of cultivation on wetting and drying of the soil, on bulk density, and on soil strength, a test site was established in February 1955 in a grassy area adjacent to the solar radiation study site at the Waterways Experiment Station.

Test Treatments

2. Four treatments were tested in the study. One treatment, termed the "one-cultivation," consisted of plowing and harrowing once in the spring with no further cultivation. A second treatment, called the "frequent cultivation," consisted of plowing and harrowing, followed by four cultivations with a one-row cultivator and a drag, four to six weeks apart. The last cultivation was performed on August 5, 1955. The grasses and sedge grew back shortly after each cultivation. A third treatment, termed the "bare treatment," consisted of killing all vegetation at frequent intervals by chemicals; no cultivation was performed. The fourth treatment was "no cultivation," and served as a check. The check and cultivated plots were clipped four times during the spring and summer.

Plot Layout and Sampling Plan

3. The four types of treatments were positioned at random in each of two blocks of four plots arranged as a row of eight plots. Each treated plot was 12 ft by 32 ft, with the sampling area 6 ft by 26 ft, leaving a 3-ft treated border area around each sampling area. A section 6 ft by 3 ft at each end of the sampling area was reserved for bulk-density sampling, leaving a 6- by 20-ft area for moisture and soil-strength sampling. The inner area was divided into 30 subplots, 2 ft square. Weekly gravimetric samples were taken from quadrants of three of the subplots selected at random. Subsequent samplings were taken at random from the remaining

subplots. By the tenth week, all subplots were sampled. The plots were then resampled, but care was taken to sample at a new quadrant in the subplot. Forty-eight sets of moisture samples were taken during the year, at the 0- to 6-, 6- to 12-, and 12- to 18-in. layers.

4. Soil-strength measurements were made with the cone penetrometer and remolding equipment in conjunction with moisture sampling when the soil was moist during spring and early summer, and again during the following winter after the soil was again wet. On nine dates, cone penetrometer measurements were made in duplicate at each of two subplots for every plot. On five dates, remolding index measurements were attempted on two or three samples from each plot of one block but firm soil conditions prevented complete sampling on any date. Blocks were alternated each date for remolding tests.

5. Bulk density was determined on cores from each 3-in. layer in the surface foot of soil. Both ends of every plot were sampled on five dates from February to November. Altogether, 320 bulk-density samples were tested. All holes made during sampling were refilled with soil from outside the study area.

6. Fiberglas soil-moisture units established in the nearby radiation site were read on all sampling days during the cultivation study. Moisture predictions were made using relations derived previously from radiation site data. These were compared to the actual record obtained by the units in 1955 and to the cultivation-study moisture record.

Vegetation on Plots

7. The vegetation contained vigorous perennials, such as nut grass (Cyperus sp.) and Johnson grass (Sorghum halepense). In consequence, regrowth was quite rapid after treatment. Cultivation appeared to stimulate growth but the frequent cultivation gradually reduced the cover. Measurements of vegetation growth were taken late in August. The check (natural) and one-cultivation plots had been clipped about a month before the measurement and the frequently cultivated area had been cultivated about three weeks before. By late August, the grass on the one-cultivation plots had grown to about a foot in height while that on the check plots had grown

only six inches in the month period. The frequently cultivated plots had a sparse growth, 2 to 3 in. high, covering only a small portion of the ground.

Results

Soil-moisture content

8. The soil-moisture records for the three layers are shown in fig. F1. In the surface to 6-in. layer, the soil wet and dried about the same regardless of treatment.

9. The soil in the bare treatment plots did not dry as rapidly as the soil in the other treatment areas in the 6- to 12-in. and 12- to 18-in. layers. The records for the check and frequently cultivated plots are in fairly close agreement. The soil in the one-cultivation area dried somewhat faster than that of the other treatments, especially early in the season. This probably was due to greater vegetation growth, stimulated by the early spring cultivation. The cultivation treatments did not appreciably affect soil-moisture conditions, except that the bare treatment had higher moisture contents below the 6-in. depth.

10. The effect of the cultivation treatments upon soil-moisture prediction is shown by the comparison in table F1 of these moisture records

Table F1

Deviations Between Predicted and Measured Soil-moisture Contents of the Cultivation Test

Comparisons	Average Deviations, in. per 6 in.	
	0- to 6-in. Layer	6- to 12-in. Layer
Clipped predicted and:		
Check	0.18	0.20
One cultivation	0.24	0.25
Frequently cultivated	0.24	0.21
Herbaceous predicted and:		
Check	0.16	0.25
One cultivation	0.24	0.23
Frequently cultivated	0.20	0.23
Bare predicted and:		
Bare	0.13	0.18

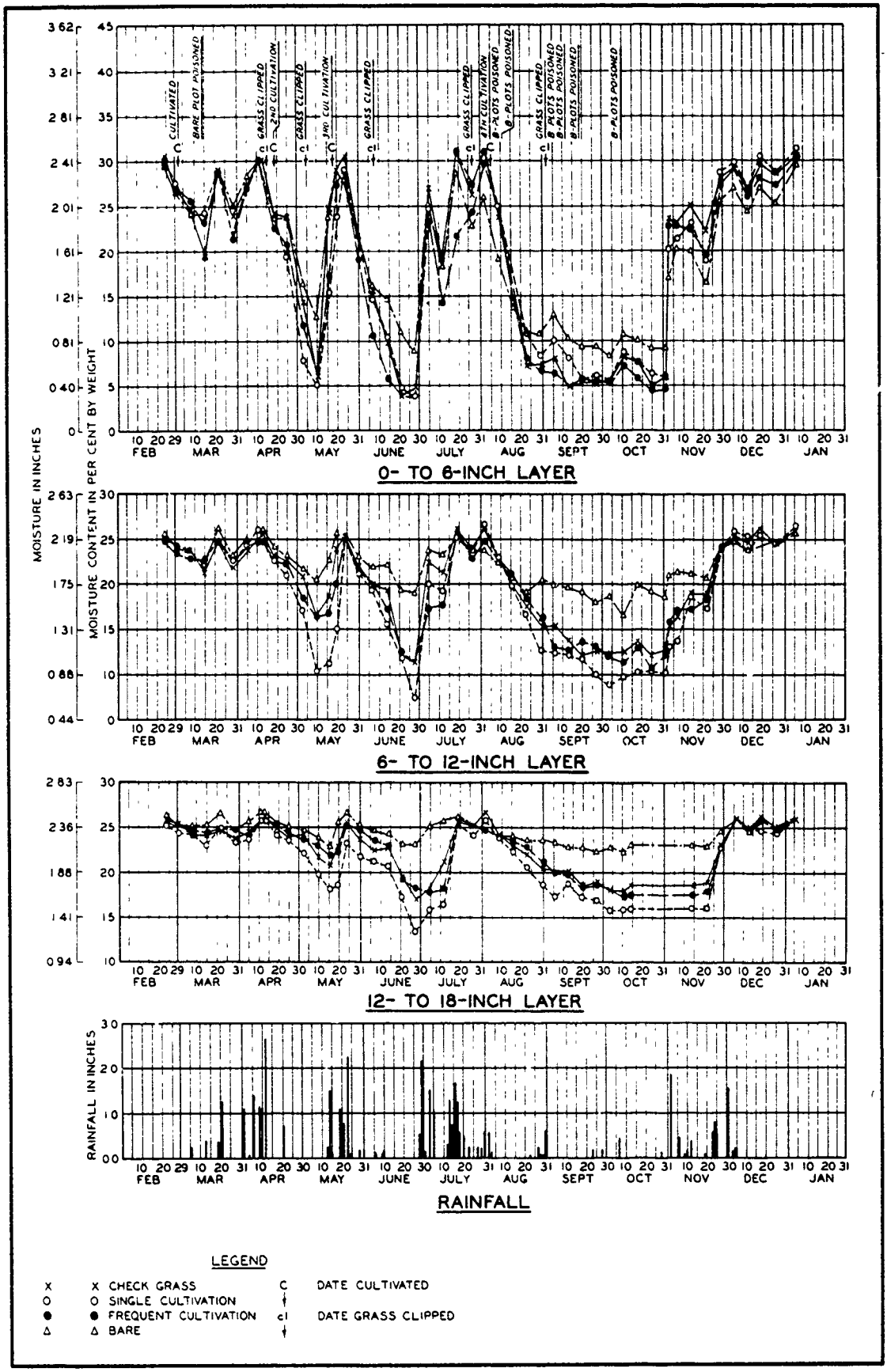


Fig. F1. The effect of cultivation on soil-moisture content at three depths, cultivation site, Vicksburg, Miss., 1955

with predictions based on relations derived from the adjacent radiation site. The radiation site had bare, frequently clipped, and natural herbaceous plots (see Report 4). The period of record used for derivation of prediction relations at the bare and the herbaceous sites extended from March 1953 to January 1955. The record for the clipped site extended from March 1954 to January 1955. The cultivation study was conducted from February 1955 to February 1956.

11. The first group of comparisons in table F1 utilizes the prediction relations derived from the soil-moisture record of the clipped radiation plot. The soil-moisture content for the year of the cultivation study was predicted, using these relations, and then compared with measurements made at the various plots. The first comparison was between the prediction and the measured moisture contents of the cultivation check plots. The check plot treatment corresponds to the clipped radiation plot. Results are fairly good as deviations averaged 0.19 in. The next entries represent deviations of the prediction from measurements taken at the cultivation treatments. Though they are not as good, they show no particular difference among themselves.

12. In the second group, a prediction was made using relations derived from the record of the unclipped herbaceous radiation plot. The comparisons are similar to those of the first group. Deviations of predicted values do not show appreciable differences by treatments. For prediction purposes, therefore, either the clipped or the herbaceous relations can be used for these cultivated areas.

13. Results of the prediction using bare sites were about the same but the bare treatment had to be predicted using relations derived from other bare areas.

Bulk-density comparisons

14. Bulk-density data collected in the course of the cultivated study were analyzed to determine differences between treatments, dates, blocks, and ends of the plots. Results are shown in table F2. Differences exist between layers as bulk density increases with depth. The two blocks showed no difference, which indicated that the area was uniform from south to north. A difference, however, did exist between the east and west ends of the plots. The plot layout and sampling were made on the east-west

Table F2

Average Bulk-density Values Obtained in a Cultivation Test

Test Location or Date	Bulk Density, g per cm^3				
	0- to 3-in. Layer	3- to 6-in. Layer	6- to 9-in. Layer	9- to 12-in. Layer	0- to 12-in. Layer
Layer	1.316	1.366	1.442	1.483	1.402
Blocks					
South	1.318	1.361	1.440	1.489	1.402
North	1.314	1.372	1.443	1.477	1.402
Ends					
East	1.310	1.342	1.402	1.465	1.380
West	1.322	1.390	1.481	1.501	1.424
Treatments					
One cultivation	1.309	1.319	1.402	1.473	1.376
Bare	1.331	1.390	1.457	1.486	1.416
Check	1.310	1.399	1.466	1.480	1.415
Cultivated frequently	1.314	1.357	1.442	1.493	1.401
Dates (1955)					
2/25	(1.259)	(1.402)	1.461	1.494	1.404
3/15	1.302	1.354	1.459	1.500	1.404
5/17	1.301	1.375	1.441	1.465	1.396
8/9	1.351	1.390	1.436	1.476	1.413
11/17	1.309	1.346	1.412	1.480	1.387

axis; hence this range in values presumably was sampled on each date. No differences are shown between cultivation treatments except in the one-cultivation treatments which had a lower bulk density in the 3- to 6-in. and 6- to 9-in. layers. This treatment had the greatest vegetative growth and probably, therefore, the most roots in the soil which might have lowered bulk densities.

15. The bulk density does not change with sampling date. The 0- to 6-in. values taken on February 25, 1955, had been omitted from the analysis of the above figures because they were sampled before the plowing treatment.

16. Statistical analysis of these data indicated that results should be reported to the nearest 0.10 g per cm^3 when duplicate samples are taken.

To obtain bulk densities accurately to 0.05 g per cm^3, at least 12 samples must be averaged.

17. The bulk-density variation is great enough to explain most of the soil-moisture variation from point to point. The results further show that bulk density for a given layer remains fairly constant throughout the period of test, and even between treatments.

Soil strength

18. Satisfactory regressions of cone index and remolding index against moisture content were derived as shown in fig. F2. The cone and remolding indexes can be shown as linear regressions; the rating cone index relation derived from them is definitely not linear. Also, it was found that soil strength of the 6- to 12-in. layer did not change with cultivation of the 0- to 6-in. layer.

Conclusions

19. Results indicate that prediction relations derived from data collected at a noncultivated site give reasonable predictions of soil moisture for cultivated sites in which grass grew back after plowing. The 6- to 12-in. layer of bared areas must be predicted during summer dry periods from relations derived from bared areas. It can also be concluded that within a growing season the bulk density remains constant, once the area has been plowed, and that soil strength in the 6- to 12-in. layer does not change after cultivation.

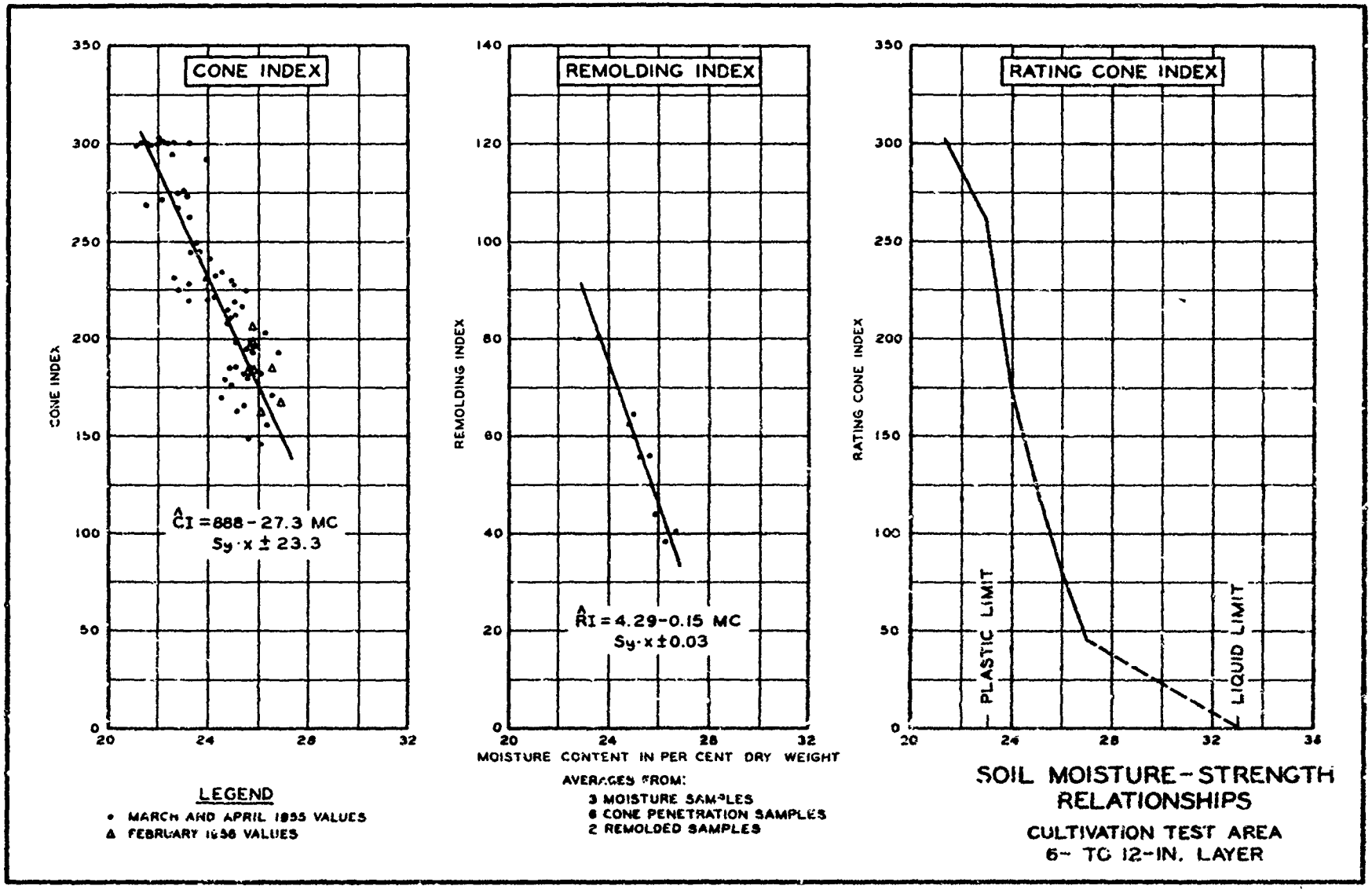


Fig. F2. Soil moisture-strength relations. Cultivation test area, 6- to 12-in. layer